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PATENT

Attorney Docket
No. B6012



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of
RONALD M. RENDLEMAN, ET AL

Serial No.:

Filed: (Herewith)

For: RETRACTABLE INKING/COATING
APPARATUS HAVING FERRIS
MOVEMENT BETWEEN PRINTING
UNITS

Group Art Unit _____

Examiner:

Box PATENT APPLICATION
Commissioner of Patents
and Trademarks
Washington, D.C. 20231

Sir:

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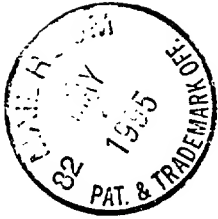
Date of Deposit: Thursday, May 4, 1995

I hereby certify that the attached patent application papers and documents referred to as enclosed therewith are being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 C.F.R. §1.10 in an envelope addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231 on the date of deposit indicated above.

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Sir:

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Respectfully submitted,

Date: May 4, 1995

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Attorney Docket
No. B6012



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Sir:

INSTRUCTIONS AS TO
UNDERPAYMENT/OVERPAYMENT OF FEES

1. UNDERPAYMENT

The Commissioner is hereby authorized to charge any fee
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Deposit Account No. 01-0657

Respectfully submitted,

Date: May 4, 1995

Dennis T. Griggs
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BAR CODE LABEL



U.S. PATENT APPLICATION

SERIAL NUMBER

08/435,798

FILING DATE

05/04/95

CLASS

118

GROUP ART UNIT

1303

APPLICANT

RONALD M. RENDLEMEN, DALLAS, TX; HOWARD W. DEMOORE, DALLAS, TX; JOHN W. BIRD, CARROLLTON, TX.

CONTINUING DATA***
VERIFIED**FOREIGN/PCT APPLICATIONS*****
VERIFIED

FOREIGN FILING LICENSE GRANTED 05/25/95

***** SMALL ENTITY *****

STATE OR
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TX

SHEETS
DRAWING

5

TOTAL
CLAIMS

34

INDEPENDENT
CLAIMS

6

FILING FEE
RECEIVED

\$633.00

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B6012

ADDRESS

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DALLAS TX 75201-4618

TITLE

RETRACTABLE INKING/COATING APPARATUS HAVING FERRIS MOVEMENT BETWEEN
PRINTING UNITSThis is to certify that annexed hereto is a true copy from the records of the United States
Patent and Trademark Office of the application which is identified above.By authority of the
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Date

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PATENT APPLICATION SERIAL NO. _____

08 435798

U.S. DEPARTMENT OF COMMERCE
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08435798-00000000

110 MM 05/19/95 08435798

1 201 633.00 CK B6012

08 435798

PATENT

Attorney Docket
No. B6012

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Box PATENT APPLICATION
Commissioner of Patents
and Trademarks
Washington, D.C. 20231

Sir:

Transmitted herewith for filing is the patent applica-
tion of:

Inventors: Ronald M. Rendleman, Howard W. DeMoore
and John W. Bird

For: "Retractable Inking/Coating Apparatus
Having Ferris Movement Between Printing
Units"

Enclosed are:

<u>1</u> pages of abstract	<u>X</u> Combined Declaration/ Power of Attorney
<u>22</u> pages of specification	<u>X</u> Statement of Small Entity Status
<u>11</u> pages of claims	<u> </u> Assignment
<u>5</u> pages of drawings	<u> </u> Underpayment/Overpayment Instructions
<u> </u> Other: <u> </u>	<u>X</u> Post Office Express Certificate <u>EF769560825US</u>

The filing fee has been calculated as shown below:

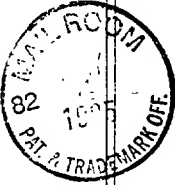
For:	No. Filed	No. Extra	Small Entity Rate	Fee
Basic Fee				\$365.00
Total Claims	34 - 20 =	14	x \$ 11....	154.00
Indep. Claims	6 - 3 =	3	x \$ 38....	114.00
Multiple dependent claims	-NONE-		+ \$120....	-0-
Assignment Recording Fee			\$ 40....	-0-
TOTAL.....				\$633.00

Respectfully submitted,

Dennis T. Griggs
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1990		1991		1992		1993		1994		1995		1996		1997		1998		1999		2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018		2019		2020		2021		2022		2023		2024		2025		2026		2027		2028		2029		2030		2031		2032		2033		2034		2035		2036		2037		2038		2039		2040		2041		2042		2043		2044		2045		2046		2047		2048		2049		2050		2051		2052		2053		2054		2055		2056		2057		2058		2059		2060		2061		2062		2063		2064		2065		2066		2067		2068		2069		2070		2071		2072		2073		2074		2075		2076		2077		2078		2079		2080		2081		2082		2083		2084		2085		2086		2087		2088		2089		2090		2091		2092		2093		2094		2095		2096		2097		2098		2099		2100		2101		2102		2103		2104		2105		2106		2107		2108		2109		2110		2111		2112		2113		2114		2115		2116		2117		2118		2119		2120		2121		2122		2123		2124		2125		2126		2127		2128		2129		2130		2131		2132		2133		2134		2135		2136		2137		2138		2139		2140		2141		2142		2143		2144		2145		2146		2147		2148		2149		2150		2151		2152		2153		2154		2155		2156		2157		2158		2159		2160		2161		2162		2163		2164		2165		2166		2167		2168		2169		2170		2171		2172		2173		2174		2175		2176		2177		2178		2179		2180		2181		2182		2183		2184		2185		2186		2187		2188		2189		2190		2191		2192		2193		2194		2195		2196		2197		2198		2199		2200		2201		2202		2203		2204		2205		2206		2207		2208		2209		2210		2211		2212		2213		2214		2215		2216		2217		2218		2219		2220		2221		2222		2223		2224		2225		2226		2227		2228		2229		2230		2231		2232		2233		2234		2235		2236		2237		2238		2239		2240		2241		2242		2243		2244		2245		2246		2247		2248		2249		2250		2251		2252		2253		2254		2255		2256		2257		2258		2259		2260		2261		2262		2263		2264		2265		2266		2267		2268		2269		2270		2271		2272		2273		2274		2275		2276		2277		2278		2279		2280		2281		2282		2283		2284		2285		2286		2287		2288		2289		2290		2291		2292		2293		2294		2295		2296		2297		2298		2299		2300		2301		2302		2303	
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102-201
435798
Attorney Docket
No. B6012

SPECIFICATION

accompanying

Application for Grant of U.S. Letters Patent

JOINT

INVENTORS:

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TITLE: "RETRACTABLE INKING/COATING APPARATUS HAVING FERRIS
MOVEMENT BETWEEN PRINTING UNITS"

Field of the Invention

1 This invention relates to sheet-fed or web-fed, rotary
2 offset or flexographic printing presses, and more particularly, to
3 a new and improved inking/coating apparatus for the in-line
4 application of printing inks or protective or decorative coatings
5 to sheets or web.

Background of the Invention

6 Conventional sheet-fed, rotary offset printing presses
7 typically include one or more printing units through which
8 individual sheets are fed and printed with wet ink. After the
9 last printing unit, the sheets are transferred by a delivery
10 conveyor to the delivery end of the press where the freshly
11 printed sheets are collected and stacked. In a typical sheet-fed,
12 rotary offset printing press such as the Heidelberg Speedmaster
13 line of presses, the delivery conveyor includes a pair of endless
14 gripper chains carrying gripper bars and gripper fingers which
15 grip and pull freshly printed sheets from the last impression
16 cylinder and convey the sheets to the sheet delivery stacker.
17

1 Since the inks used with rotary offset printing presses
2 typically remain wet and tacky for some time after printing,
3 special precautions must be taken to insure that the freshly
4 printed sheets are not marked or smeared as the sheets are
5 transferred from one printing unit to another, and while being
6 conveyed to the sheet delivery stacker. The printed surface of
7 the sheet dries relatively slowly and can be smeared during
8 subsequent transfer between printing units. In order to reduce
9 smearing and offsetting, spray powder is applied on the printed
10 sheet.

11 In some printing applications, offset and smearing are
12 prevented by applying a protective and/or decorative coating over
13 all or a portion of the freshly printed sheets. Some coating
14 solutions include varnish, lacquer, dye, moisturizers and ink.
15 Such coatings are formed of a UV-curable or water-dispersed resin
16 applied as a liquid solution or emulsion over the freshly printed
17 sheets to protect the ink and improve the appearance of the
18 freshly printed sheets. Such coatings are particularly desirable
19 when decorative or protective finishes are required such as in the
20 production of posters, record jackets, brochures, magazines,
21 folding cartons and the like. The coating is permeable to oxygen
22 to permit drying of the ink. In cases where a liquid coating is
23 to be applied, the coating operation is carried out after the last
24 color ink has been printed. In some cases, it is desirable to
25 spot coat from the printing plate. For both operations, the
26 coating is most desirably performed by an in-line coater.-

27 In printing presses having flexographic printing plates,
28 an aqueous ink is used, for example metallic (gold) ink and opaque
29 white ink, both of which can be overprinted at the next printing
30 unit. An advantage of flexographic printing is that no dampening
31 unit is required. The flexographic printing plate has a raised
32 image surface (relief). Colors are stronger when flexographic
33 inks are used because they are not diluted by dampening solution.

1 Description of the Prior Art

2 Various arrangements have been made for applying the
3 coating as an in-line printing operation by using the last
4 printing unit of the press as the coating application unit. For
5 example, in U.S. Patents 4,270,483, 4,685,414 and 4,779,557, there
6 are disclosed coating apparatus which can be moved into position
7 to allow the blanket cylinder of the last printing unit of a press
8 to be used to apply a coating material to the sheets. In U.S.
9 Patent 4,796,556 and U.S. Patent 4,841,903 there is disclosed a
10 coating apparatus which can be selectively moved between the
11 blanket cylinder or the plate cylinder of the last printing unit
12 of the press so that the last printing unit can only be used for
13 coating purposes. However, when coating apparatus of these types
14 are used, the last printing unit cannot be used to apply ink to
15 the sheets, but rather can only be used for the coating operation.
16 Thus, while coating with these types of in-line coating apparatus,
17 the press loses the capability of printing its full range of
18 colors since the last printing unit is converted to a coating
19 unit.

20 Proposals for overcoming the problem of the loss of a
21 printing unit when in-line coating is desired have also been made,
22 such as that set forth in U.S. Patent 4,934,305 which discloses a
23 coating apparatus having a separately timed applicator roller
24 positioned to apply the coating material to the freshly printed
25 sheet while the sheet is on the last impression cylinder of the
26 press. This is said to allow the last printing unit to print and
27 coat simultaneously, so that no loss of a printing unit capability
28 results. Another approach to providing a coating unit without
29 losing the printing capabilities of the last printing unit is to
30 provide a totally separate coating unit downstream of the last
31 printing unit so that the coating is applied to the sheets after
32 the last printing unit. Such an arrangement is disclosed in U.S.
33 Patents 4,399,767, 4,706,601 and 5,176,077.

34 In an effort to reduce costs and maintain flexibility in
35 adapting the printing press to different jobs, coating apparatus

1 has been provided that can be selectively engaged with the plate
2 cylinder or blanket cylinder to carry out the coating operation,
3 and disengaged so that the last printing unit can be used for
4 offset printing when coating is not required. Examples of coaters
5 which are selectively engagable with either the plate cylinder or
6 the blanket cylinder are disclosed in U.S. Patent 4,615,293
7 (Jahn), U.S. Patent 5,107,790 (Sliker et al.) and U.S. Patent
8 4,841,903 (Bird).

9 The coater of U.S. Patent 4,615,293 includes two
10 applicator rollers, both disposed on the dampening side of the
11 plate cylinder and blanket cylinder for carrying out spot and
12 blanket coating operations as desired. The coater of U.S. Patent
13 5,107,790 is retractable along an inclined rail for extending and
14 retracting a coater head into engagement with either the plate
15 cylinder or the blanket cylinder. Because of its size, the
16 rail-retractable coater can only be installed between the last
17 printing unit of the press and the delivery stacker, and cannot be
18 used at interstation positions. The coaters of Patent 4,615,293
19 are located on the dampener side of the plate and blanket cylin-
20 ders, thus requiring removal of the dampening unit to make room
21 for the doctor blade head and applicator rollers. Consequently,
22 the last printing unit of the press is converted into a coating
23 unit, resulting in the loss of the printing capability of that
24 printing unit.

25 It will be appreciated that the time required to
26 reconfigure a press for coating or non-coating is non-productive
27 and costly. Accordingly, there is a need for a coating apparatus
28 which minimizes the time to clean-up from one printing run and set
29 up and run the next job. Where consecutive jobs require the same
30 type of coating, particularly blanket coating, it may not be
31 necessary to clean-up the coater between jobs. However, the
32 coating cannot be allowed to dry on the rollers. Therefore,
33 especially when switching from blanket to spot coating or vice
34 versa, or if there is a delay between jobs, it is necessary to
35 wash-up the coater after each job is completed.

1 In addition, wash-up is necessary when switching between
2 different coating compositions, such as aqueous and ultra violet
3 (UV) curable coatings. Such coatings are not interchangeable, and
4 the coaters must be washed between applications of the different
5 coating media. It is difficult to wash-up some coaters while the
6 press is running. Moreover, the retractable coaters mentioned
7 above occupy a large amount of press space and diminishes
8 accessibility to the press. Elaborate equipment is needed for
9 retracting the coater from the operative coating position to an
10 out-of-the-way, inoperative position which reduces access to the
11 printing unit.

12 A limitation on the use of flexographic printing plates
13 and aqueous printing inks is that the freshly printed or coated
14 sheets require hot air for drying. When applying an aqueous ink
15 such as opaque white or metallic gold, it is necessary to dry the
16 printed sheets between printing units before overprinting them.

17 Moreover, when utilizing lithographic printing inks, it
18 is necessary to frequently stop the press and wash the blanket.
19 Metallic ink in particular "piles" on the blanket and must be
20 washed frequently.

21 Objects of the Invention

22 Accordingly, the principal object of the present
23 invention is to provide improved inking/coating apparatus which is
24 capable of selectively applying ink or a coating material to a
25 plate on a plate cylinder or a coating material to a blanket on a
26 blanket cylinder of a printing press.

27 Another object of the present invention is to provide
28 inking/coating apparatus of the character described which is
29 extendable into inking/coating engagement with either a plate
30 cylinder or a blanket cylinder, and which is retractable to a non-
31 operative position to provide clear access to the cylinders of the
32 printing unit.

33 A related object of the present invention is to provide
34 inking/coating apparatus of the character described which is

1 capable of being used in an interstation position and does not
2 interfere with access to the press.

3 Yet another object of the present invention is to
4 provide inking/coating apparatus of the character described, which
5 can be moved from an operative inking/coating engagement position
6 to a non-operative, retracted position.

7 Still another object of the present invention is to
8 provide inking/coating apparatus of the character described, which
9 can be used for applying aqueous inks and coatings to a litho-
10 graphic printing plate or a flexographic printing plate in a
11 rotary offset press.

12 A related object of the present invention is to provide
13 inking/coating apparatus of the character described, which is
14 capable of applying aqueous coating at one printing unit and
15 drying the coating before it reaches the next printing unit where
16 it can be overprinted with aqueous ink or lithographic ink.

17 Another object of the present invention is to provide
18 inking/coating apparatus for use on a multiple color rotary offset
19 printing press that can apply ink or coating to the plate or
20 blanket of a printing unit from a single applicator head.

21 A related object of the invention is to provide
22 inking/coating apparatus of the character described, in which no
23 printing unit adjustment or alteration is required when the
24 applicator head is converted from plate to blanket operation and
25 vice versa.

26 Summary of the Invention

27 The foregoing objects are achieved by a retractable, in-
28 line inking/coating apparatus which is mounted on a printing unit
29 tower for pivotal, Ferris wheel type movement between an operative
30 inking/coating position and a retracted, overhead position. The
31 inking/coating apparatus includes an applicator head which extends
32 into and retracts out of engagement with a plate on a plate
33 cylinder or a blanket on a blanket cylinder. The inking/coating
34 applicator head is positioned in parallel alignment with either

1 the plate cylinder or the blanket cylinder by a carriage assembly
2 which includes a cantilever support arm. The support arm is
3 pivotally coupled between the inking/coating head and the printing
4 unit tower. This cantilevered, pivotal mounting arrangement
5 allows the inking/coating unit to be used between two printing
6 units, as well as installed on the last printing unit of the
7 press.

8 In the preferred embodiment, the applicator head
9 includes vertically spaced pairs of cradle members with one cradle
10 pair being adapted for supporting a metal or ceramic coating
11 roller in alignment with a blanket cylinder, and the other cradle
12 pair supporting a resilient anilox coating roller in alignment
13 with the plate cylinder, respectively, when the applicator head is
14 in the operative position. Because of the cantilevered, pivotal
15 support provided by the support arm, the applicator head can be
16 lifted and lowered through an arc, similar to Ferris wheel
17 movement, in the limited space between adjacent printing units.
18 When fully retracted, the coater and carriage assembly are lifted
19 to an overhead position overlying the printing unit tower, thus
20 providing complete access to the printing unit cylinders, without
21 causing the printing unit to lose its printing capability. The
22 inking/coating applicator roller can be inspected, cleaned or
23 replaced and the doctor blade assembly can be washed-up automati-
24 cally while the inking/coating apparatus is in the fully retracted
25 position.

26 When the inking/coating apparatus is used in combination
27 with a flexographic printing plate and aqueous ink or aqueous
28 coating, the water component of the aqueous ink or coating on the
29 freshly printed sheet is evaporated by a high velocity, hot air
30 interstation dryer and a high volume heat and moisture extractor
31 assembly so that the freshly printed ink or coating is completely
32 dry before the sheet is printed on the next printing unit. This
33 quick drying flexographic printing/coating arrangement permits a
34 base coat of ink, for example opaque white or metallic ink (gold,
35 silver or other metallics) to be applied in the first printing

unit, and then overprinted by the lithographic process on the next printing unit.

Other features and advantages of the present invention will become more apparent from the following detailed description taken in conjunction with the accompanying drawings which disclose, by way of example, the principles of the present invention.

Brief Description of the Drawings

FIGURE 1 is a schematic side elevational view of a sheet-fed, rotary offset printing press having inking/coating apparatus embodying the present invention;

FIGURE 2 is a perspective view of the printing press of FIGURE 1 in which a dual head inking/coating apparatus is in the operative coating position and a single head coater is in a retracted, overhead position;

FIGURE 3 is an enlarged simplified perspective view showing one side of the single head inking/coating apparatus of FIGURE 1 in the operative position;

FIGURE 4 is a simplified side elevational view showing the dual head inking/coating apparatus in the operative coating position for spot or overall coating from the blanket position;

FIGURE 5 is a simplified side elevational view showing the single head inking/coating apparatus in the operative coating position for spot or overall coating from the plate position; and,

FIGURE 6 is a simplified side elevational view of the dual head inking/coating apparatus of FIGURE 4, partially broken away, which illustrates the hydraulic drive assembly and doctor blade assembly.

Detailed Description of the Preferred Embodiments

As used herein, the term "processed" refers to various printing methods which may be applied to either side of a substrate, including the application of UV-curable and aqueous inks and/or coatings. The term "substrate" refers to sheet or web

1 material. Also, as used herein, the term "waterless printing
2 plate" refers to a printing plate having non-image surface areas
3 which are hydrophobic and also having image surface areas which
4 are hydrophilic, wherein the non-image surface areas are charac-
5 terized by a surface tension value which is less than the surface
6 tension of aqueous ink, and the image surface areas are character-
7 ized by a surface tension value which is greater than the surface
8 tension of aqueous ink. "Flexographic" refers to flexible
9 printing plates having a relief surface which is wettable by
10 aqueous ink or coating material.

11 As shown in the exemplary drawings, the present
12 invention is embodied in a new and improved in-line inking/coating
13 apparatus, herein generally designated 10, for use in applying
14 inks or protective and/or decorative coatings to sheets or webs
15 printed in a sheet-fed or web-fed, offset rotary or flexographic
16 printing press, herein generally designated 12. In this instance,
17 as shown in FIGURE 1, the inking/coating apparatus 10 is installed
18 in a four color printing press 12, such as that manufactured by
19 Heidelberger Druckmaschinen AG of the Federal Republic of Germany
20 under its designation Heidelberg Speedmaster 102V (40"). The
21 press 12 includes a press frame 14 coupled at one end, herein the
22 right end, to a sheet feeder 16 from which sheets, herein
23 designated S, are individually and sequentially fed into the
24 press, and at the opposite end, with a sheet delivery stacker 20
25 in which the freshly printed sheets are collected and stacked.
26 Interposed between the sheet feeder 16 and the sheet delivery
27 stacker 20 are four substantially identical sheet printing units
28 22, 24, 26 and 28 which can print different color inks onto the
29 sheets as they are transferred through the press 12. The printing
30 units are housed within printing towers T1, T2, T3 and T4 formed
31 by side frame members 14, 15.

32 As illustrated, the printing units 22, 24, 26 and 28 are
33 substantially identical and of conventional design. The first
34 printing unit 22 includes an in-feed transfer cylinder 30, a plate
35 cylinder 32, a blanker cylinder 34 and an impression cylinder 36,

1 all supported for rotation in parallel alignment between the press
2 side frames 14, 15 which define printing unit towers T1, T2, T3
3 and T4. Each of the first three printing units 22, 24 and 26 have
4 a transfer cylinder 38 disposed to withdraw the freshly printed
5 sheets from the adjacent impression cylinder and transfer the
6 freshly printed sheets to the next printing unit via an inter-
7 station transfer cylinder 40. The last printing unit 28 is shown
8 equipped with a delivery cylinder 42 which supports the printed
9 sheet 18 as it is transferred from the last impression cylinder 36
10 to a delivery conveyor system, generally designated 44, to the
11 sheet delivery stacker 20.

12 The delivery conveyor system 44 as shown in FIGURE 2 is
13 of conventional design and includes a pair of endless delivery
14 gripper chains 46, only one of which is shown carrying at regular
15 spaced locations along the chains, laterally disposed gripper bars
16 having gripper fingers used to grip the leading edge of a freshly
17 printed sheet 18 after it leaves the nip between the delivery
18 cylinder 42 and impression cylinder 36 of the last printing unit
19 28. As the leading edge is gripped by the grippers, the delivery
20 chains 46 pull the sheet away from the impression cylinder 36 and
21 convey the freshly printed sheet to the sheet delivery stacker 20.

22 Prior to reaching the delivery sheet stacker, the
23 freshly printed and/or coated sheets S pass under a delivery dryer
24 48 which includes a combination of infra-red thermal radiation,
25 high velocity hot air flow and a high performance heat and
26 moisture extractor for drying the ink and/or the protec-
27 tive/decorative coating.

28 In the exemplary embodiment shown in FIGURE 1, the first
29 printing unit 22 is equipped with a flexographic printing plate,
30 and does not require an inking roller train or a dampening system.
31 If an ink roller train is mounted on the first printing unit, the
32 form rollers are retracted and locked off when the printing unit
33 goes on impression. Flexographic aqueous ink is supplied by the
34 inking/coating unit 110. The remaining printing units 24, 26 and
35 28 are equipped for lithographic printing and include an inking

1 apparatus 50 having an inking roller train 52 arranged to transfer
2 ink from an ink fountain 54 to the plate cylinder 32. This is
3 accomplished with the aid of a fountain roller 56 and a ductor
4 roller. The fountain roller 56 projects into the ink fountain 54,
5 whereupon its surface is wetted with ink. The printing ink Q is
6 transferred intermittently to the inking roller train 52 by the
7 ductor roller. The inking roller train 52 supplies ink Q to the
8 image areas of a printing plate P mounted on the plate cylinder 32.

9 The printing ink Q is transferred from the printing
10 plate P to an ink receptive blanket B which is mounted on the
11 blanket cylinder 34. The inked image carried on the blanket B is
12 transferred to a sheet S as the sheet is transferred through the
13 nip between the impression cylinder 36 and the blanket B.

14 The inking roller arrangement 52 illustrated in FIGURE
15 1 is exemplary for use in combination with lithographic ink
16 printing plates. It will be understood that dampening rollers
17 (not illustrated) will be in direct engagement with the litho-
18 graphic plate P, but are not used in combination with the
19 flexographic plate of printing unit 22.

20 Referring now to FIGURE 4, FIGURE 5 and FIGURE 6, the
21 in-line inking/coating apparatus 10 includes a carriage assembly
22 58 which supports an applicator head 60. The applicator head 60
23 includes a hydraulic motor 62, a lower gear train 64, an upper
24 gear train 65, an applicator roller 66 and a doctor blade assembly
25 68. The external peripheral surface of the applicator roller 66
26 is inserted into wetting contact with liquid coating material or
27 ink contained in a reservoir 70. The reservoir is continuously
28 supplied with ink or coating which is circulated through the
29 reservoir 70 from an off-press source by a pump (not illustrated).
30 The hydraulic motor 62 drives the applicator roller 66 synchro-
31 nously with the plate cylinder 32 and the blanket cylinder 34 in
32 response to an RPM control signal from the press drive (not
33 illustrated) and a feedback signal developed by a tachometer 72.
34 While a hydraulic drive motor is preferred, an electric drive
35 motor can be used.

1 The fluid metering applicator 66 is preferably an anilox
2 roller which transfers measured amounts of printing ink or coating
3 material onto the printing plate or blanket. The surface of an
4 anilox roller is engraved with an array of closely spaced, shallow
5 depressions referred as "cells". Ink or coating from the
6 reservoir 70 flows into the cells as the anilox roller turns
7 through the reservoir. The transfer surface of the anilox roller
8 is scraped with a doctor blade 73 to remove excess ink or coating.
9 The ink or coating remaining on the anilox roller is that
10 contained within the cells.

11 The anilox roller 66 is cylindrical and may be con-
12 structed in various diameters and lengths, containing cells of
13 various sizes and shapes. The volumetric capacity of an anilox
14 roller is established during manufacturing and is dependent upon
15 the selection of cell size, shape and number of cells per unit
16 area. Depending upon the intended application, the cell pattern
17 may be fine (many small cells per square inch) or coarse (fewer
18 larger cells per square inch).

19 By applying the ink or coating through the inking/coat-
20 ing applicator 60, more ink or coating can be delivered to the
21 sheet S as compared with the inking roller train of a lithographic
22 printing unit. Moreover, color intensity is stronger and more
23 brilliant because the flexographic ink is applied at a much larger
24 film thickness than can be applied by the lithographic process and
25 is not diluted by dampening solution.

26 Preferably, the doctor blade assembly 68 is constructed
27 as described in U.S. Patent 5,176,077 (DeMoore), which is
28 incorporated herein by reference.

29 The applicator head 60 includes side frame members 74,
30 76 which support the applicator roller 66, gear train 64, gear
31 train 65, doctor blade assembly 68 and the drive motor 62. The
32 applicator roller 66 is supported at opposite ends on a lower
33 cradle formed by a pair of end plates 78, 80 which hold the
34 applicator roller 66 in parallel alignment with the blanket
35 cylinder 34 (FIGURE 5). The side frame 74, 76 are also provided

1 with an upper cradle formed by a pair of side plates 82, 84 which
2 are vertically spaced with respect to the lower side plates 78,
3 80. Each cradle has a pair of sockets 79, 81 and 83, 85,
4 respectively, for holding an applicator roller 66 for spot coating
5 or inking engagement against the plate P of the plate cylinder 32
6 (FIGURE 4) or the blanket B of the blanket cylinder 34.

7 Preferably, the applicator roller 66 for the upper
8 cradle (plate) position is an anilox roller having a resilient
9 transfer surface. In the dual cradle arrangement, the press
10 operator can quickly change over from blanket inking/coating and
11 plate inking/coating with minimum press down time, since it is
12 only necessary to remove and reposition or replace the applicator
13 roller 66, and wash-up the doctor blade assembly if changing from
14 ink to coating or vice versa. The capability to selectively
15 operate in either the flexographic mode or the lithographic mode
16 and to print or coat from either the plate or blanket position is
17 referred to herein as the "LITHOFLEX" process.

18 According to an important feature of the present
19 invention, the applicator head 60 is supported by the carriage
20 assembly 58 in a cantilevered, pivotal arrangement which allows
21 the dual cradle inking/coating apparatus 10 and single cradle
22 inking/coating apparatus 110 to be installed and used between any
23 two adjacent printing units, as well as installed on the first and
24 last printing units of the press. This is made possible by a pair
25 of cantilevered support arms 88, 90 which are pivotally coupled to
26 the side plates 74, 76, respectively, on a pivot shaft 77. Each
27 support arm has a hub portion 88A, 90A, respectively and an
28 elongated shank portion 88B, 90B, respectively. The elongated
29 shank portion extends transversely with respect to the shank
30 portion, and preferably extend perpendicularly with respect to
31 each other.

32 The cantilevered support arms are pivotally mounted on
33 the printing tower by pivot blocks 92, 94, respectively. The hub
34 portions 88A, 90A are journalled for rotation on pivot shafts 96,
35 98, respectively. The pivot blocks 92, 94 are securely fastened

1 to the tower 14D, so that the carriage assembly 86 is pivotally
2 suspended from the pivot shafts 96, 98 in a cantilevered Ferris
3 support arrangement. The shank portions 88B, 90B are pivotally
4 coupled to the pivot shaft 77, so that the carriage assembly 58
5 and the applicator head 60 are capable of independent rotation
6 with respect to each and with respect to the pivot shaft 77. By
7 this arrangement, the applicator head 60 is pivotally suspended
8 from the pivot shaft 77, and remains in an upright orientation as
9 the support arms rotate from the operative position to the fully
10 retracted position and vice versa.

11 Thus, the cradles 78, 80 and 82, 84 position the
12 applicator roller 66 in vertical and horizontal alignment with the
13 plate cylinder or blanket cylinder when the applicator head is
14 extended to the operative position. Moreover, because of the
15 transverse relationship between the hub portion and shank portion
16 of the support arms, the applicator head 60 and carriage assembly
17 58 are capable of rotating through a Ferris arc without touching
18 the adjacent tower. This makes it possible to install the
19 inking/coating apparatus 10 on any intermediate printing unit
20 tower (T2, T3), and as well as the first printing unit tower T1
21 and the last printing unit tower T4. Additionally, because of the
22 transverse relationship of the support arm hub portion and shank
23 portion, the lateral projection of the applicator head 60 into the
24 interstation space between printing units is minimized, thus
25 assuring virtually unrestricted operator access in the inter-
26 station space between adjacent printing units when the applicator
27 head is engaged in the operative position, and completely
28 unrestricted access when the applicator head is completely
29 retracted.

30 As shown in FIGURE 1 and FIGURE 2, rotation of the
31 carriage assembly 58 is counterclockwise from the retracted
32 position (shown in phantom) to the operative position. The
33 carriage assembly can be adapted for clockwise rotation from the
34 retracted position to the operative position for engagement of the
35 applicator roller to either the plate cylinder or the blanket

1 cylinder on the dampener side of the tower, assuming that access
2 to the plate and blanket is not restricted by dampener rollers or
3 the like.

4 Rotational movement of the support arms 88, 90 is
5 assisted by counterweights 100, 102 which are secured to the
6 support arms, respectively, for concurrent rotation with respect
7 to the pivot blocks 92, 94. With the passive assistance of the
8 counterweights, the press operator can easily move the ink-
9 ing/coating assembly 10 from the engaged operative position as
10 shown in FIGURE 4 to the fully retracted idle position as shown in
11 phantom in FIGURE 1. Preferably, rotation of the carriage
12 assembly 58 is assisted by power means such as a torsion spring,
13 electric motor, or hydraulic motor.

14 The inking/coating apparatus 10 is releasably locked
15 into the engaged position as shown in FIGURE 4 by releasable latch
16 couplings 103, 105 which secure the support arms 88, 90 to the
17 press side frames 14, 15, respectively, of the printing unit tower
18 T4 in the operative position. Coating engagement of the applica-
19 tor roller 66 against the blanket cylinder 34 is produced by power
20 actuators, preferably pneumatic cylinders 104, 106 which have
21 extendable/retractable power transfer arms 104A, 106A, respective-
22 ly. The pneumatic cylinder 104 is pivotally coupled to the
23 support arm 88 by a pivot linkage 108, and the second pneumatic
24 cylinder 106 is pivotally coupled to the support arm 90 by a pivot
25 linkage 109. In response to actuation of the pneumatic cylinders
26 104, 106, the power transfer arms are retracted. As the arms
27 retract, the inking/coating head 60 is rotated counterclockwise on
28 the pivot shaft 77, thus moving the applicator roller 66 into
29 coating engagement with the blanket cylinder 34.

30 The pivot linkage 108 includes a bell crank 111 which is
31 mounted for pivotal movement on a pin 113. The pin 113 is
32 supported by a clevis plate 115 which is attached to the support
33 arm 88. One end of the bell crank is pivotally coupled to the
34 actuator arm 104A, and a cam roller 117 is mounted for rotation on
35 its opposite end.

1 The cam roller 117 is engagable against an adjustable
2 stop 119 which is rigidly secured to the side plate 74. Counter-
3 clockwise shifting of the handle H moves a cam follower 121 into
4 a latch pocket 123 of a receiver block 125 as the cam roller 117
5 is moved into engagement with the adjustable stop 119 in the
6 interlocked, operative position. Referring to FIGURE 4, FIGURE 5
7 and FIGURE 6, the receiver block is rigidly secured to the
8 delivery side face of the printing unit tower by machine screws.

9 When the plate P goes on impression, power is applied to
10 the pneumatic actuator 104 and the power transfer arm 104A
11 retracts, thus causing the bell crank 111 to rotate counterclock-
12 wise about the pin 113. The torque applied by the actuator is
13 transmitted to the applicator head 60 through the cam roller 117
14 and the adjustable stop 119. Counterclockwise movement of the
15 applicator head 60 relative to the support shaft 77 carries the
16 applicator roller 66 into engagement with the plate P.

17 The adjustable stop 119 has a threaded bolt 119A which
18 is engagable with the cam roller 117. The striking point of
19 engagement is preset so that the applicator roller 66 is properly
20 positioned for engagement with the plate P or blanket B when the
21 applicator head 60 is interlocked with the press frame 14 and the
22 printing unit goes on impression.

23 Referring to FIGURE 5, an inking/coating apparatus 110
24 having a single head is illustrated. The construction of this
25 alternative embodiment is identical in all respects with the dual
26 head arrangement, with the exception that only a single gear train
27 and a single cradle for holding the applicator roller is provided.
28 In both embodiments, the inking/coating head 60 remains upright as
29 it swings through an arc, similar to the movement of a Ferris
30 wheel. Because of the upright orientation of the inking/coating
31 head 60 as it moves between the extended and retracted positions,
32 the usual platform spacing between printing unit towers provides
33 adequate clearance to permit extension and retraction of the
34 carriage assembly 58 without interference with operator access to
35 the printing units. This is a significant advantage in that it

1 permits the in-line inking/coating apparatus to operate effective-
2 ly in the interstation space between any adjacent printing units,
3 and without blocking or obstructing access to the cylinders of the
4 printing units when the inking/coating apparatus is in the fully
5 retracted position as indicated in FIGURE 1.

6 Moreover, when the in-line inking/coating apparatus is
7 in the fully retracted position, the applicator roller 66 is
8 conveniently positioned on the dampener side of the printing unit
9 for inspection, clean-up or removal. Additionally, the doctor
10 blade assembly is also conveniently positioned for inspection,
11 removal, adjustment or clean-up. The doctor blade reservoir and
12 coating circulation lines can also be cleaned while the printing
13 unit is running as well as when the press has been stopped for
14 change-over from one type of ink or coating to another.

15 When the inking/coating apparatus is used for applying
16 an aqueous ink or an aqueous coating material, the water component
17 on the freshly printed sheet S is evaporated by a high velocity,
18 hot air interstation dryer and high volume heat and moisture
19 extractor units 112 and 114, as shown in FIGURE 1, FIGURE 4 and
20 FIGURE 5. The dryer/extractor units 112 and 114 are oriented to
21 direct high velocity heated air onto the freshly printed/coated
22 sheet as it is transferred by the impression cylinder 36 and the
23 intermediate transfer cylinder 40. By this arrangement, the
24 freshly printed aqueous ink or coating is completely dry before
25 the sheet is overprinted in the next printing unit.

26 The high velocity, hot air dryer and high performance
27 heat and moisture extractor units 112, 114 utilize high velocity
28 air jets which scrub and break-up the moist air level which clings
29 to the surface of each freshly printed sheet. Within each dryer,
30 high velocity air is heated to a high temperature as it flows
31 across a resistance heating element within an air delivery baffle
32 tube. High velocity jets of hot air are discharged through
33 multiple airflow apertures through an exposure zone Z (FIGURE 4
34 and FIGURE 5) onto the freshly printed/coated sheet S as it is
35 transferred by the impression cylinder 36 and transfer cylinder

1 40, respectively. Each dryer assembly includes a pair of air
2 delivery dryer heads which are arranged in spaced, side-by-side
3 relation. The high velocity, hot air dryer and high performance
4 heat and moisture extractor units 112, 114 are preferably
5 constructed as disclosed in co-pending U.S. Patent Application
6 Serial No. 08/132,584, filed October 6, 1993, entitled "High
7 Velocity Hot Air Dryer", assigned to the assignee of the present
8 invention and which is incorporated herein by reference.

9 The high velocity, hot moisture-laden air displaced from
10 each printed sheet is extracted from the dryer exposure zone Z and
11 completely exhausted from the printing unit by the high volume
12 extractors. Each extractor head includes a manifold coupled to
13 the dryer heads and draws the moisture, volatiles and high
14 velocity hot air through a longitudinal gap between the dryer
15 heads. According to this arrangement, each printed sheet is dried
16 before it is run through the next printing unit.

17 The water-based inks used in flexographic printing dry
18 at a relatively moderate drying temperature provided by the
19 interstation high velocity hot air dryers/extractors 112, 114.
20 Because each freshly printed sheet is dried between each printing
21 unit, clarity and print quality are substantially improved since
22 the aqueous ink is dried at each printing unit before it enters
23 the next printing unit. Since the aqueous ink is dry before the
24 sheet enters the next printing unit, back-trapping on the blanket
25 of the next printing unit is completely eliminated. This
26 interstation drying arrangement makes it possible to print aqueous
27 inks such as metallic ink and opaque white ink at one printing
28 unit, and then overprint at the next printing unit.

29 Moreover, this arrangement permits the first printing
30 unit to be used as a coater in which an aqueous coating is applied
31 to low grade paper such as recycled paper to trap and seal in
32 lint, dust, spray powder and other debris and provide a smoother,
33 durable surface which is overprinted in the next printing unit.
34 An UV-curable coating can be applied over the first down over-
35 printed (aqueous) coating in the last printing unit. The first

1 down layer seals the surface of the low grade, rough substrate and
2 improves overprinted dot definition while preventing strike-
3 through and show-through.

4 Preferably, the applicator roller 66 is either metal or
5 ceramic when it is used for applying a coating material to the
6 blanket B on the cylinder 34. When the applicator roller 66 is
7 applied to the plate, it is preferably constructed as an anilox
8 roller having a resilient transfer surface for engaging a
9 flexographic printing plate. Suitable resilient roller surface
10 materials include Buna N synthetic rubber and EPDM (terpolymer
11 elastomer).

12 It will be appreciated that the inking/coating apparatus
13 10 is capable of applying a wide range of ink types, including
14 fluorescent (Day Glo), pearlescent, metallics (gold, silver and
15 other metallics), glitter, scratch and sniff (micro-encapsulated
16 fragrance), scratch and reveal, luminous, pressure-sensitive
17 adhesives and the like.

18 The press operator can eliminate the dampener roller
19 assembly altogether, and the inking/coating apparatus 10 can
20 selectively apply aqueous inks and coatings to a flexographic or
21 waterless printing plate and the blanket. Moreover, overprinting
22 of the aqueous inks and coatings can be carried out in the next
23 printing unit since the aqueous inks and coatings are completely
24 dried by the high velocity, hot air interstation dryer and high
25 volume heat and moisture extractor assembly of the present
26 invention.

27 The aqueous inks and coatings as used in the present
28 invention contain colored pigments and/or soluble dyes, binders
29 which fix the pigments onto the surface of the printed sheet and
30 waxes, defoamers and thickeners. Aqueous printing inks predomi-
31 nantly contain water as a solvent, diluent and/or vehicle. The
32 thickeners which are preferred include algonates, starch,
33 cellulose and its derivatives, for example cellulose esters or
34 cellulose ethers and the like. Coloring agents including organic
35 as well as inorganic pigments may be derived from dyes which are

1 insoluble in water. Also, the printing ink may contain water and
2 may be predominantly glycol or the like, with the pigment being
3 bound by an appropriate resin. When metallic inks are printed,
4 the cells of the anilox roller must be appropriately sized to
5 prevent the metal particles from getting stuck within the cells.
6 The cell size is critical, and for metallic gold ink, the anilox
7 roller should have a screen line count in the range of 175-300
8 lines per inch.

9 The inking/coating apparatus 10 can also apply UV-
10 curable inks and coatings. If UV-curable inks and coatings are
11 utilized, ultra-violet dryers/extractors are installed adjacent
12 the high velocity hot air dryer/extractor units 112, 114,
13 respectively.

14 Moreover, by utilizing the coating apparatus on the
15 first printing unit, a seal coating can be applied to trap lint,
16 spray powder, dust and other debris, and cover defects on lower
17 grade paper which will improve print quality, which can then be
18 overprinted on the next in-line printing unit.

19 It will be appreciated that the "LITHOFLEX" system
20 described herein makes it possible to selectively operate a
21 printing unit in either the flexographic printing mode or the
22 lithographic printing mode, while also providing the capability to
23 print or coat from either the plate or blanket position. The dual
24 cradle support arrangement of the present invention makes it
25 possible to quickly change over from inking/coating at the blanket
26 cylinder position to inking/coating at the plate cylinder position
27 with minimum press down-time, since it is only necessary to remove
28 and reposition or replace the applicator roller 66 while the
29 printing/inking apparatus is in the retracted position.

30 Moreover, the press operator may elect to spot or
31 overall coat with aqueous ink/coating from the plate for one job,
32 and then spot and/or overall coat from the blanket during the next
33 job. Since the doctor blade assembly can be flushed and washed-up
34 quickly and the applicator roller can be changed out quickly, it
35 is possible to spot coat or overall coat from the plate position

1 or the blanket position with aqueous inks or coatings during the
2 first press run and then spot coat or overall coat with UV-curable
3 inks or coatings from the plate position or from the blanket
4 position during the next press run. The inking/coating apparatus
5 is completely out of the way in the retracted position; conse-
6 quently, the doctor blade reservoir and supply lines may be
7 flushed and washed-up by automatic wash-up equipment while the
8 printing unit is printing another job.

9 The positioning of the applicator head and roller
10 assembly relative to the plate and blanket is repeatable to a pre-
11 determined, preset impression position. Consequently, no printing
12 unit adjustment or alteration is required, except for flushing the
13 doctor blade assembly and cleaning or replacing the applicator
14 roller to accommodate a different kind of ink or coating.
15 Although manual extension and retraction have been described in
16 connection with the exemplary embodiment, extension to the
17 operative position and retraction to a non-operative position can
18 be carried out automatically by hydraulic or electric motor
19 servomechanisms.

20 The cantilevered, Ferris wheel support arrangement
21 allows the inking/coating apparatus to operate effectively in the
22 interstation space between any adjacent printing units, as well as
23 on the first or last printing units of the press, without blocking
24 or obstructing the interstation space or restricting operator
25 access to the cylinders of any of the printing units.

26 Finally, because the inking/coating apparatus of the
27 present invention is mounted on a printing unit tower and is
28 extendable to the operative position without requiring adjustment
29 or alteration of the printing unit cylinders, it can be used for
30 applying ink or coating to the blanket cylinder of a rotary offset
31 web press, or to the blanket of a dedicated coating unit.

32 Although the present invention and its advantages have
33 been described in detail, it should be understood that various
34 changes, substitutions and alterations may be made herein without

1 departing from the spirit and scope of the present invention as
2 defined by the appended claims.

What is claimed is:

Sub A1

1. In a printing press of the type having side frame members forming a printing unit tower on which a plate cylinder and blanket cylinder are supported for rotation, the improvement comprising:

inking/coating apparatus for applying ink or coating material to a plate mounted on the plate cylinder or to a blanket mounted on the blanket cylinder when the inking/coating apparatus is in an operative position; and,

a carriage assembly including a support arm having a first end portion pivotally coupled to the printing unit tower and a second end portion pivotally coupled to the inking/coating apparatus, the carriage assembly being movable to an operative position in which the inking/coating apparatus is suspended laterally adjacent to the plate and blanket cylinders, and being movable to a retracted position in which the inking/coating apparatus is elevated with respect to the plate and blanket cylinders.

2. The invention as set forth in claim 1, wherein the inking/coating apparatus comprises:

a doctor blade assembly having a reservoir for receiving ink or liquid coating material;

an applicator roller coupled to the doctor blade assembly in fluid communication with the reservoir, the applicator roller being engagable with a printing plate on the plate cylinder or with a blanket on the blanket cylinder when the inking/coating apparatus is in the operative position.

3. The invention as set forth in claim 2, the applicator roller comprising:

an anilox roller having a resilient transfer surface.

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4. The invention as set forth in claim 1, including a counterweight coupled to the support arm.

1 5. The invention as set forth in claim 1, further
2 comprising:

3 a power actuator pivotally coupled to the support
4 arm, the power actuator having a power transfer arm which is
5 extendable and retractable; and,

6 apparatus coupled to the power transfer arm for
7 converting extension or retraction movement of the power transfer
8 arm into pivotal movement of the inking/coating apparatus relative
9 to the support arm.

10 6. The invention as set forth in claim 5, in which the
11 movement converting apparatus comprises:

12 a bell crank plate having a first end portion
coupled to the power transfer arm and having a second end portion
for engaging a stop member;

a stop member secured to the inking/coating
apparatus; and,

a clevis plate secured to the support arm and
pivotally coupled to the bell crank plate.

1 7. The invention as set forth in claim 1, the
2 inking/coating apparatus comprising:

3 an applicator head having first and second side
4 frame members pivotally coupled to the carriage assembly;

5 a doctor blade assembly mounted between the first
6 and second side frame members, the doctor blade assembly including
7 a reservoir for receiving ink or liquid coating material;

8 cradle means mounted on the first and second side
9 frame members, respectively;

10 an applicator roller mounted for rotation on the
11 cradle means and coupled to the doctor blade assembly for rolling
12 contact with ink or coating material in the reservoir, the

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13 applicator roller being engagable with a printing plate on the
14 plate cylinder or with a blanket on the blanket cylinder in the
15 operative position; and,
16 motor means coupled to the applicator roller for
17 rotating the applicator roller.

1 8. The invention as set forth in claim 7,
2 the cradle means including first and second sockets
3 disposed on the first and second side frame members respectively;
4 and,
5 the applicator roller being mounted for rotation on
6 the first and second sockets.

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1 Sub A3 9. The invention as set forth in claim 7,
2 the cradle means including first and second sockets
3 disposed on the first and second side frame members, respectively,
4 and third and fourth sockets disposed on the first and second side
5 frame members, respectively;
6 the applicator roller being mountable for rotation
7 on the first and second sockets for applying ink or coating
8 material to the plate when the carriage assembly is in the
9 operative position; and,
10 the applicator roller being mountable for rotation
11 on the third and fourth sockets for applying ink or coating
12 material to the blanket when the carriage assembly is in the
13 operative position.

1 10. The invention as set forth in claim 1, comprising:
2 male and female latch coupling members mounted on
3 the carriage assembly and on the printing unit tower, respective-
4 ly, for releasably latching the carriage assembly in interlocking
5 engagement with the printing unit tower in the operative position.

1 11. The invention as set forth in claim 1, wherein the
2 support arm comprises an elongated shank portion and a hub portion

3 which extends transversely with respect to the shank portion, the
4 elongated shank portion being pivotally coupled to the ink-
5 ing/coating apparatus and the hub portion being pivotally coupled
6 to the printing unit tower.

Sub A4

12. A sheet-fed, rotary offset printing press comprising, in combination:

3 at least one printing unit or dedicated coating
4 unit having side frame members forming a tower;

5 at least one cylinder mounted for rotation on the
6 tower for printing ink or coating material onto sheets passing
7 through the printing unit or dedicated coating unit;

8 inking/coating apparatus including a doctor blade
9 assembly having a reservoir for holding ink or coating liquid, a
10 rotatable applicator roller and means for applying ink or coating
11 liquid from the reservoir onto a peripheral surface portion of the
12 applicator roller; and,

13 support apparatus mounted on the printing unit
14 tower for pivotal movement, said support apparatus being movably
15 coupled to the inking/coating apparatus for supporting the
16 inking/coating apparatus for movement to an operative position in
17 which the applicator roller is engagable with a plate or a blanket
18 on the cylinder, and for movement to a retracted position in which
19 the inking/coating apparatus is supported at an elevated position
20 above the cylinder.

13. A rotary offset printing press comprising, in
2 combination:

3 a plate cylinder having a printing plate mounted
4 thereon;

5 a blanket cylinder having an ink receptive blanket
6 disposed in ink transfer engagement with the plate cylinder for
7 transferring ink from the image surface areas of the printing
8 plate to the ink receptive blanket;

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9 an impression cylinder disposed adjacent the
10 blanket cylinder thereby defining a nip between the impression
11 cylinder and the blanket whereby the printing ink is transferred
12 from the blanket to a substrate as the substrate is transferred
13 through the nip;

14 inking/coating apparatus for applying ink or
15 coating material to the plate or to the blanket;

16 support apparatus mounted on the printing press for
17 pivotal movement, said support apparatus being movably coupled to
18 the coating apparatus for supporting the inking/coating apparatus
19 for movement to an operative position in which the inking/coating
20 apparatus is engagable with the plate or the blanket, and for
21 movement to a retracted position in which the inking/coating
22 apparatus is supported at an elevated position above the press;
23 and,

24 a dryer mounted on the press for discharging heated
25 air on the freshly printed substrate.

1 14. A rotary offset printing press as defined in claim
2 13, wherein:

3 the dryer is mounted adjacent the impression
4 cylinder for discharging heated air onto a freshly printed
5 substrate while the substrate is in contact with the impression
6 cylinder.

1 15. A rotary offset printing press as defined in claim
2 13, comprising:

3 an extractor coupled to the dryer for extracting
4 hot air, moisture and volatiles from an exposure zone between the
5 dryer and the freshly printed substrate.

1 16. A rotary offset printing press as defined in claim
2 13, comprising:

3 a transfer cylinder disposed in an interstation
4 position on the press and coupled in sheet transfer relation with
5 the impression cylinder; and,
6 an interstation dryer disposed adjacent the
7 transfer cylinder for discharging heated air onto a freshly
8 printed or coated substrate after it has been transferred from the
9 impression cylinder and while it is in contact with the inter-
10 mediate transfer cylinder.

17. In a printing press of the type having side frame
members forming a tower on which a blanket cylinder is supported
for rotation, the improvement comprising:

inking/coating apparatus for applying ink or
coating material to a blanket mounted on the blanket cylinder when
the inking/coating apparatus is in an operative position; and,

a carriage assembly movably coupled to the tower
and to the inking/coating apparatus for producing Ferris wheel
movement of the inking/coating apparatus to the operative position
in which the inking/coating apparatus is suspended laterally
adjacent to the blanket cylinder, and to a retracted position in
which the inking/coating apparatus is elevated with respect to the
blanket cylinder.

18. The invention as set forth in claim 17, wherein the
tower includes a plate cylinder and a plate mounted on the plate
cylinder, the inking/coating apparatus including:

first cradle means for supporting an applicator
roller for engagement against the plate when the inking/coating
apparatus is in the operative position; and,

second cradle means for supporting an applicator
roller for engagement against the blanket when the inking/coating
apparatus is in the operative position.

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1 19. The invention as set forth in claim 17, comprising:
2 said carriage assembly including a support arm
3 having a first end portion pivotally coupled to the tower and
4 having a second end portion;

5 a common pivot shaft on which the support arm
6 second end portion and the inking/coating apparatus are pivotally
7 mounted; and,

8 male and female latch members coupled between the
9 common pivot shaft and the tower, with one of the latch members
10 being secured to the common pivot shaft and the other latch member
11 being secured to the tower, the latch members being mateable in
12 interlocking engagement when the inking/coating apparatus is in
13 the operative position.

1 20. The invention as set forth in claim 17, further
2 comprising:

3 a power actuator pivotally coupled to the support
4 arm, the power actuator having a power transfer arm which is
5 extendable and retractable; and,

6 apparatus coupled to the power transfer arm for
7 converting extension or retraction movement of the power transfer
8 arm into pivotal movement of the inking/coating apparatus relative
9 to the common pivot shaft.

1 *Sub A 6* 21. The invention as set forth in claim 20, in which
2 the movement converting apparatus comprises:

3 a bell crank plate having a first end portion
4 coupled to the power transfer arm and having a second end portion
5 for engaging a stop member;

6 a stop member secured to the inking/coating
7 apparatus; and,

8 a clevis plate secured to the support arm and
9 pivotally coupled to the bell crank plate.

1 22. The invention as set forth in claim 1, wherein the
2 inking/coating apparatus comprises:
3 an applicator roller having a resilient transfer
4 surface.

1 23. The invention as set forth in claim 1, wherein the
2 applicator roller is mounted for engagement to a plate in the
3 plate cylinder position, the applicator roller comprising an
4 anilox roller having a resilient transfer surface.

1 24. A method for rotary offset printing in a rotary
2 offset press of the type including first and second printing
3 units, and using aqueous or UV-curable printing ink or coating
4 material in the operation of at least the first printing unit,
5 comprising the following steps performed at each printing unit in
6 succession:
7 spot or overall coating with aqueous ink/aqueous
8 coating or UV-curable ink/UV-curable coating from the plate;
9 spot and/or overall coating the blanket with
10 aqueous ink/aqueous coating or UV-curable ink or UV-curable
11 coating from the blanket;
12 transferring the printing ink or coating from the
13 printing plate to the blanket;
14 transferring the printed image from the blanket to
15 a substrate as the substrate is transferred through the nip
16 between an impression cylinder and the blanket; and,
17 drying the ink or coating on the freshly printed
18 substrate before the substrate is processed in the second printing
19 unit.

1 25. A method for rotary offset printing as defined in
2 claim 24,
3 wherein the drying step is performed by discharging
4 hot air onto the freshly printed/coated substrate after it has
5 been transferred from the first printing unit and while it is

6 contact with an intermediate transfer cylinder, but before it is
7 processed in the second printing unit.

1 26. A method for rotary offset printing as defined in
2 claim 24,

3 wherein the drying step is performed by directing
4 high velocity, heated air onto the freshly printed/coated
5 substrate while the freshly printed/coated substrate is in contact
6 with an impression cylinder.

1 27. A method for rotary offset printing as defined in
2 claim 24, including the steps:

3 transferring the freshly printed substrate to an
4 intermediate transfer cylinder; and,

5 drying the freshly printed substrate while it is in
6 contact with the intermediate transfer cylinder.

1 28. A method for rotary offset printing as defined in
2 claim 24, including the step:

3 extracting hot air, moisture and volatiles from an
4 exposure zone above the freshly printed/coated substrate while the
5 freshly printed/coated substrate is in contact with the impression
6 cylinder.

1 29. A method for rotary offset printing as defined in
2 claim 24, including the steps:

3 applying a primer coating of an aqueous coating
4 material or UV-curable coating material to a substrate in the
5 first printing unit;

6 trapping and sealing dust, lint, spray powder and
7 other debris under the primer coating; and,

8 drying the primer coating on the substrate before
9 the substrate is overprinted in the second printing unit.

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1 30. A method for rotary offset printing in a rotary
2 offset press of the type including first and second printing
3 units, and using aqueous or UV-curable printing ink/coating
4 material in the operation of at least the first printing unit
5 comprising the following steps performed at each printing unit in
6 succession:

7 transferring the printing ink/coating material to
8 a printing plate at the first printing unit;

9 transferring the printing ink/coating material from
10 the printing plate to a blanket;

11 transferring the printed image from the blanket to
12 a substrate as the substrate is transferred through the nip
13 between an impression cylinder and the blanket; and,

14 drying the printing ink on the freshly printed
15 substrate before the substrate is processed in the second printing
16 unit.

1 31. A method for rotary offset printing as defined in
2 claim 30,

3 wherein the drying step is performed by discharging
4 hot air onto the freshly printed substrate after it has been
5 transferred from the first printing unit and while it is in
6 contact with an intermediate transfer cylinder, but before it is
7 processed in the second printing unit.

1 32. A method for rotary offset printing as defined in
2 claim 30, wherein the drying step is performed by directing high
3 velocity, heated air onto the freshly printed substrate while the
4 freshly printed substrate is in contact with the impression
5 cylinder.

1 33. A method for rotary offset printing as defined in
2 claim 30, including the steps:

3 transferring the freshly printed substrate to an
4 intermediate transfer cylinder; and,

5 drying the freshly printed substrate while it is in
6 contact with the intermediate transfer cylinder.

1 34. A method for rotary offset printing as defined in
2 claim 30, including the step:

3 extracting hot air, moisture and volatiles from an
4 exposure zone above the substrate while the substrate is in
5 contact with the impression cylinder.

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"RETRACTABLE INKING/COATING APPARATUS
HAVING FERRIS MOVEMENT BETWEEN PRINTING UNITS"

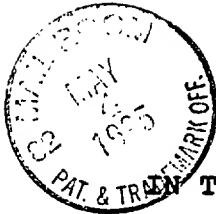
Abstract of the Disclosure

1 A retractable in-line inking/coating apparatus selec-
2 tively applies either spot or overall ink/coating to a blanket or
3 flexographic plate on a blanket cylinder or spot coating or
4 overall ink/coating to a flexographic printing plate on a plate
5 cylinder in a rotary offset printing press. The inking/coating
6 apparatus is pivotally mounted on the tower of a printing unit or
7 dedicated coating unit, and is extended into and retracted out of
8 inking/coating engagement by a carriage assembly which is
9 pivotally coupled to the printing unit tower. Because of the
10 pivotal support provided by a cantilevered support arm, the
11 inking/coating apparatus can be raised and lowered through a
12 Ferris wheel arc movement between adjacent printing units. The
13 aqueous component of the printing ink or coating is evaporated by
14 a high velocity, hot air interstation dryer and a high performance
15 heat and moisture extractor so that the ink on a freshly printed
16 sheet is dry before the sheet is printed on the next printing
17 unit. Thus, flexographic ink or coating applied at the first
18 printing unit can immediately be overprinted on subsequent
19 printing units.

* * * * *

Attorney Docket No.

B6012



SMALL ENTITY
INDEPENDENT INVENTOR

THE UNITED STATES PATENT AND TRADEMARK OFFICE

**DECLARATION CLAIMING SMALL ENTITY STATUS
(37 C.F.R. §1.9(f) and §1.27 (b)) - INDEPENDENT INVENTOR**

RECEIVED 967500

I, RONALD M. RENDLEMAN, hereby declare that I qualify as an independent inventor as defined in 37 C.F.R. §1.9(c) for the purposes of paying reduced fees under Section 41(a) and (b) of Title 35, United States Code, to the U.S. Patent and Trademark Office with regard to the invention entitled

**"RETRACTABLE INKING/COATING APPARATUS HAVING
FERRIS MOVEMENT BETWEEN PRINTING UNITS"**

X in the application filed herewith.

_____ in U.S. application Serial No. _____ filed
_____.

_____ patent No. _____, issued _____.

I have not assigned, granted, conveyed or licensed, and am under no obligation under contract or law to assign, grant, convey or license, any rights in the invention to any person who could not be classified as an independent inventor under 37 C.F.R. §1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 C.F.R. §1.9(d) or a non-profit organization under 37 C.F.R. §1.9(e).

Each person, concern or organization to which I have assigned, granted, conveyed, or licensed or am under any obligation under contract or law to assign, grant, convey, or license any rights in the invention is identified below:

_____ no such person, concern or organization exists.

X any such person, concern or organization is identified below, if applicable:

Full Name Howard W. DeMoore

Address 10954 Shady Trail

Dallas, Texas 75220

X individual small business concern

 nonprofit organization

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate pursuant to 37 C.F.R. §1.28(b).

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

Printed Name of Inventor: Ronald M. Rendleman

Date: 5/1/95 
Signature of Inventor

RECEIVED 5/1/95



Attorney Docket No.

B6012

SMALL ENTITY
INDEPENDENT INVENTOR

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

DECLARATION CLAIMING SMALL ENTITY STATUS
(37 C.F.R. §1.9(f) and §1.27 (b)) - INDEPENDENT INVENTOR

I, HOWARD W. DEMOORE, hereby declare that I qualify as an independent inventor as defined in 37 C.F.R. §1.9(c) for the purposes of paying reduced fees under Section 41(a) and (b) of Title 35, United States Code, to the U.S. Patent and Trademark Office with regard to the invention entitled

"RETRACTABLE INKING/COATING APPARATUS HAVING
FERRIS MOVEMENT BETWEEN PRINTING UNITS"

X in the application filed herewith.

_____ in U.S. application Serial No. _____ filed
_____.

_____ patent No. _____, issued _____.

I have not assigned, granted, conveyed or licensed, and am under no obligation under contract or law to assign, grant, convey or license, any rights in the invention to any person who could not be classified as an independent inventor under 37 C.F.R. §1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 C.F.R. §1.9(d) or a non-profit organization under 37 C.F.R. §1.9(e).

Each person, concern or organization to which I have assigned, granted, conveyed, or licensed or am under any obligation under contract or law to assign, grant, convey, or license any rights in the invention is identified below:

_____ no such person, concern or organization exists.

X any such person, concern or organization is identified below, if applicable:

Full Name Printing Research, Inc.

Address 10954 Shady Trail

Dallas, Texas 75220

 individual X small business concern

 nonprofit organization

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate pursuant to 37 C.F.R. §1.28(b).

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

Printed Name of Inventor: Howard W. DeMoore

Date: May 1, 1990 Howard W. DeMoore
Signature of Inventor

RECEIVED 9/6/90



Attorney Docket No.

B6012

SMALL ENTITY
INDEPENDENT INVENTOR

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

DECLARATION CLAIMING SMALL ENTITY STATUS
(37 C.F.R. §1.9(f) and §1.27 (b)) - INDEPENDENT INVENTOR

I, JOHN W. BIRD, hereby declare that I qualify as an independent inventor as defined in 37 C.F.R. §1.9(c) for the purposes of paying reduced fees under Section 41(a) and (b) of Title 35, United States Code, to the U.S. Patent and Trademark Office with regard to the invention entitled

"RETRACTABLE INKING/COATING APPARATUS HAVING
FERRIS MOVEMENT BETWEEN PRINTING UNITS"

X in the application filed herewith.

_____ in U.S. application Serial No. _____ filed
_____.

_____ patent No. _____, issued _____.

I have not assigned, granted, conveyed or licensed, and am under no obligation under contract or law to assign, grant, convey or license, any rights in the invention to any person who could not be classified as an independent inventor under 37 C.F.R. §1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 C.F.R. §1.9(d) or a non-profit organization under 37 C.F.R. §1.9(e).

Each person, concern or organization to which I have assigned, granted, conveyed, or licensed or am under any obligation under contract or law to assign, grant, convey, or license any rights in the invention is identified below:

_____ no such person, concern or organization exists.

X any such person, concern or organization is identified below, if applicable:

Full Name Howard W. DeMoore

Address 10954 Shady Trail

Dallas, Texas 75220

X individual small business concern

 nonprofit organization

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate pursuant to 37 C.F.R. §1.28(b).

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

Printed Name of Inventor: John W. Bird

Date: May 1, 1995 John W. Bird
Signature of Inventor

105750-96750



Attorney Docket No.

B6012

SMALL ENTITY
SMALL BUSINESS CONCERN

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL
ENTITY STATUS (37 C.F.R. §1.9(f) and §1.27(c))--
SMALL BUSINESS CONCERN

I, HOWARD W. DEMOORE

hereby declare that I am

— the owner of the small business concern identified below:

X an official of the small business concern empowered to act on behalf of the concern identified below:

NAME OF CONCERN Printing Research, Inc.
ADDRESS OF CONCERN 10954 Shady Trail
Dallas, Texas 75220

I hereby declare that the above-identified small business concern qualifies as a small business concern as defined in 13 C.F.R. §121.3-18, and reproduced in 37 C.F.R. §1.9(d), for purposes of paying reduced fees under Section 41(a) and (b) of Title 35, United States Code, in that the number of employees of the concern, including those of its affiliates, does not exceed 500 persons. For purposes of this statement, (1) the number of employees of the business concern is the average over the previous fiscal year of the concern of the persons employed on a full-time, part-time or temporary basis during each of the pay periods of the fiscal year, and (2) concerns are affiliates of each other when, either directly or indirectly, one concern controls or has the power to control the other, or a third-party or parties controls or has the power to control both.

I hereby declare that rights under license, contract or law have been acquired by or conveyed to and remain with the small business concern identified above with regard to the invention entitled

**"RETRACTABLE INKING/COATING APPARATUS HAVING
FERRIS MOVEMENT BETWEEN PRINTING UNITS"**

by inventors Ronald M. Rendleman, Howard W. DeMoore and
John W. Bird

as described in

- ☒ the specification filed herewith.
- ☐ the specification filed _____ under Serial
No. _____.
- ☐ Patent No. _____, issued _____.

If the rights held by the above-identified small business concern are not exclusive, each individual, concern or organization having rights to the invention is listed below and no rights to the invention are held by any person, other than the inventor, who could not qualify as a small business concern under 37 C.F.R. §1.9(d) or by any concern which would not qualify as a small business concern under 37 C.F.R. §1.9(d) or a nonprofit organization under 37 C.F.R. §1.9(e).

- ☒ no such person, concern or organization exists
- ☐ any such person, concern or organization is identified below, if applicable:

Full Name _____

Address _____

- ☐ individual ☐ small business concern
- ☐ nonprofit organization

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small business entity is no longer appropriate. (37 C.F.R. §1.28(b)).

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or

imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

TYPED NAME OF PERSON SIGNING Howard W. DeMoore

TITLE OF PERSON OTHER THAN OWNER President and Chairman of
the Board

Date: 1 May 1975

Howard W. DeMoore
Signature

105700-964760

PATENT

JOINT
UTILITY

Attorney Docket
No. B6012

DECLARATION AND POWER OF ATTORNEY

We, RONALD M. RENDLEMAN, HOWARD W. DEMOORE, JOHN W. BIRD, joint inventors herein, hereby declare that:

Our residence, post office address and citizenship are as stated below next to our names.

We believe that we are the original, first and joint inventors of the subject matter which is claimed and for which a patent is sought on the invention entitled

"RETRACTABLE INKING/COATING APPARATUS HAVING
FERRIS MOVEMENT BETWEEN PRINTING UNITS",

the specification of which is attached hereto.

We hereby state that we have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to in this declaration.

We each individually acknowledge the duty to disclose to the U.S. Patent Office all information known to me that is material to the patentability of any claim in accordance with Title 37, Code of Federal Regulations, §1.56, and which is material to the examination of this application, namely, information where there is a substantial likelihood that a reasonable examiner would consider it important in deciding whether to allow the application to issue as a patent.

We hereby claim foreign priority benefits under Title 35, United States Code §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

<u>Country</u>	<u>Application No.</u>	<u>Filing Date</u> <u>(day, month, year)</u>
----------------	------------------------	---

- NONE -

We hereby claim the benefit under Title 35, United

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States Code §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code §112, we acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations §1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

<u>U.S. Serial No.</u>	<u>U.S. Filing Date</u>	<u>Status</u>
------------------------	-------------------------	---------------

- NONE -

We hereby appoint DENNIS T. GRIGGS, Registration No. 27,790, of the firm of AKIN, GUMP, STRAUSS, HAUER & FELD, L.L.P., our attorney to prosecute this application and to transact all business in the U.S. Patent and Trademark Office connected therewith. We request that all correspondence be addressed to:

Dennis T. Griggs
Akin, Gump, Strauss, Hauer & Feld, L.L.P.
1700 Pacific Avenue, Suite 4100
Dallas, Texas 75201-4618

Phone: 214/969-2747

We hereby declare that all statements made herein of our own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of this application or any patent issued thereon.

Full name of first joint Inventor: Ronald M. Rendleman 1-00
Residence: Dallas, Texas TX
Citizenship: U.S.
Post Office Address: 4331 Royal Ridge
Dallas, Texas 75229

Date: 5/1/95
Ronald M. Rendleman

-2- →

Full name of
second joint Inventor: Howard W. DeMoore 200

Residence: Dallas, Texas

Citizenship: U.S. TX

Post Office Address: 10954 Shady Trail
Dallas, Texas 75220

Date: May 1, 1995 Howard W. DeMoore
Howard W. DeMoore

Full name of
third joint Inventor: John W. Bird 300

Residence: Carrollton, Texas

Citizenship: U.S. TX

Post Office Address: 1514 Iroquois Circle
Carrollton, Texas 75007

Date: May 1, 1995 John W. Bird
John W. Bird

105750-9625760

APPROVED	DATE
BY	CLERK
DRAFTSMAN	

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 RONALD M. RENDLEMAN
 HOWARD W. DEMOORE
 JOHN W. BIRD

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 105

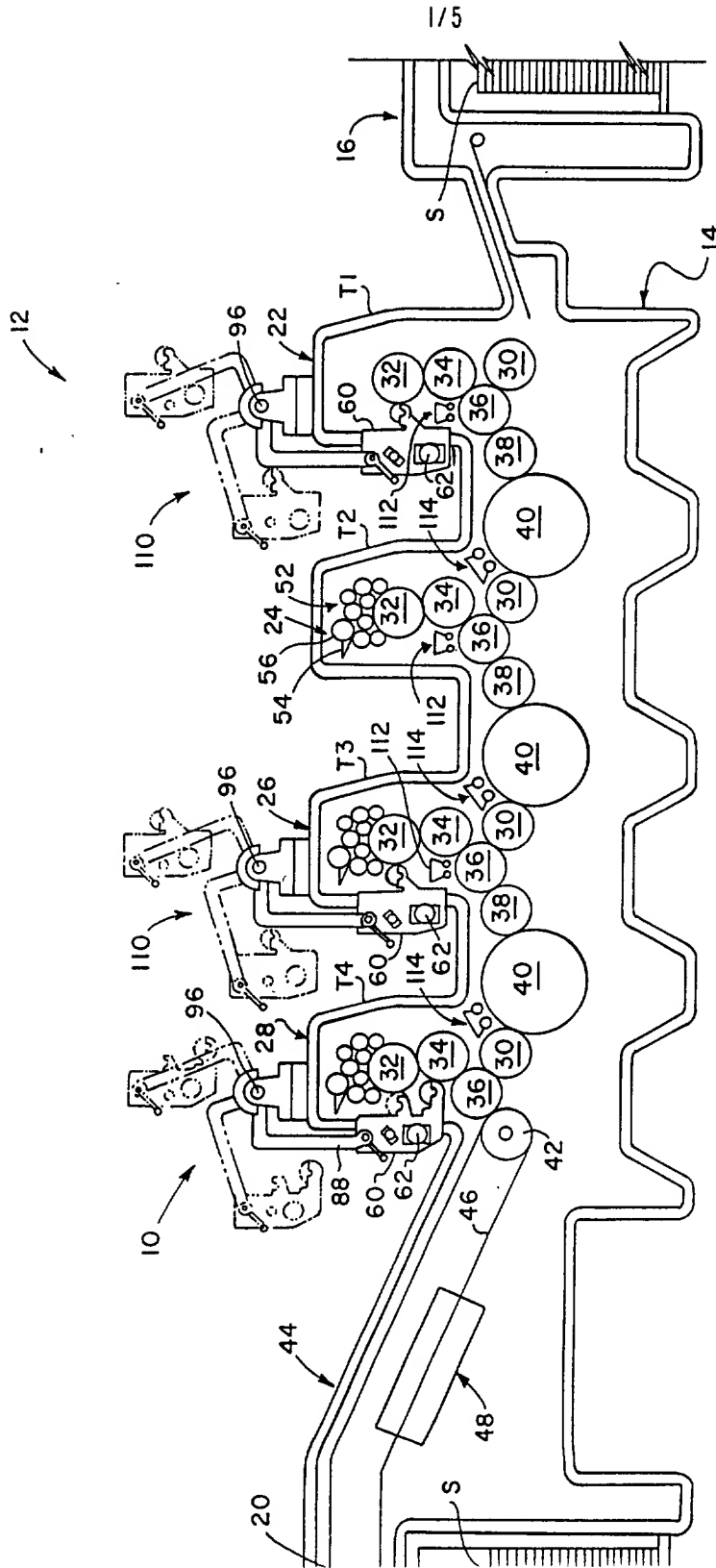


FIG. 1

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 RONALD M. RENDLEMAN
 HOWARD W. DEMOORE
 JOHN W. BIRD

08 435798

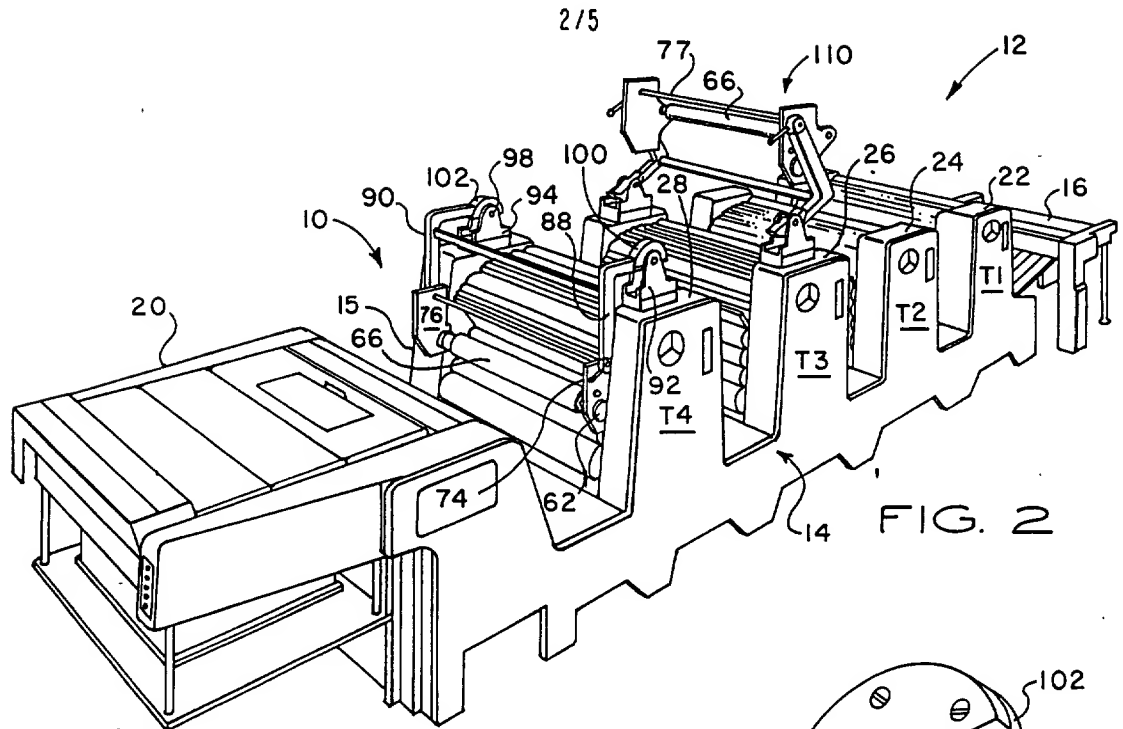
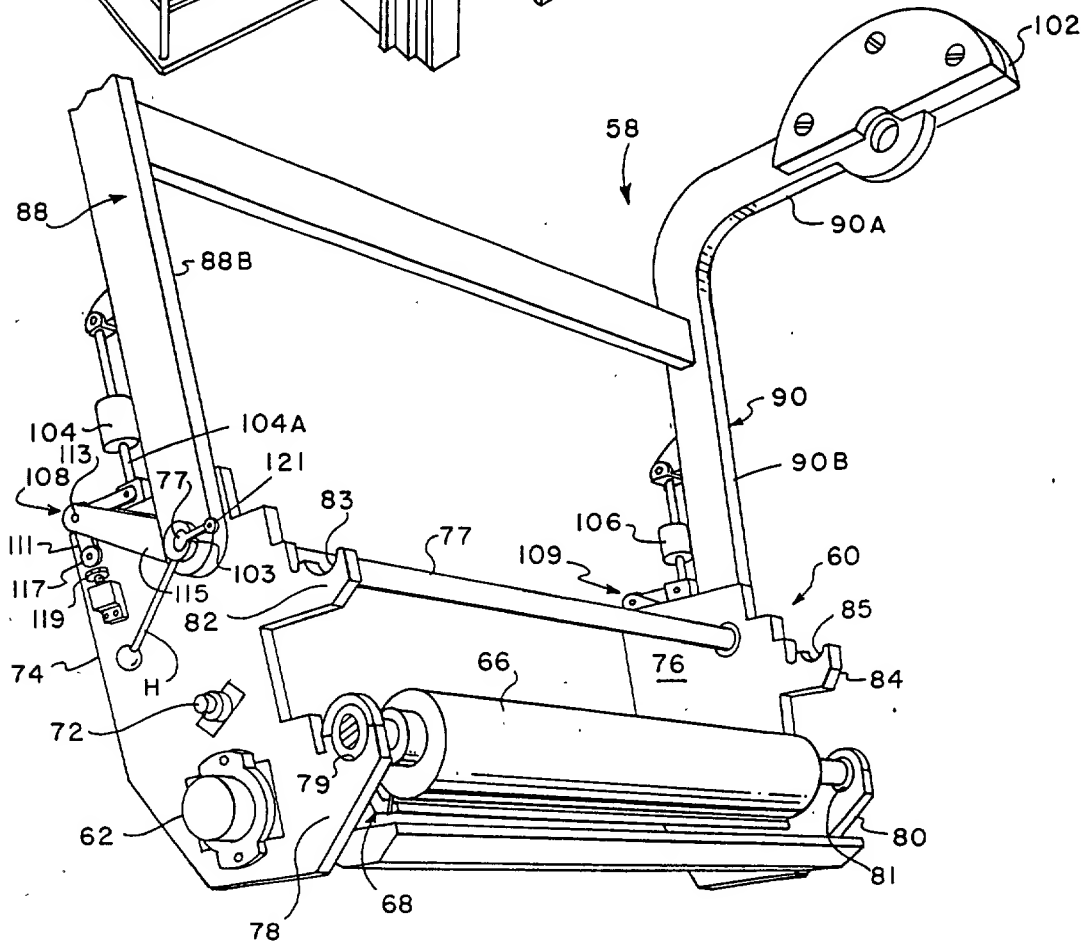


FIG. 2



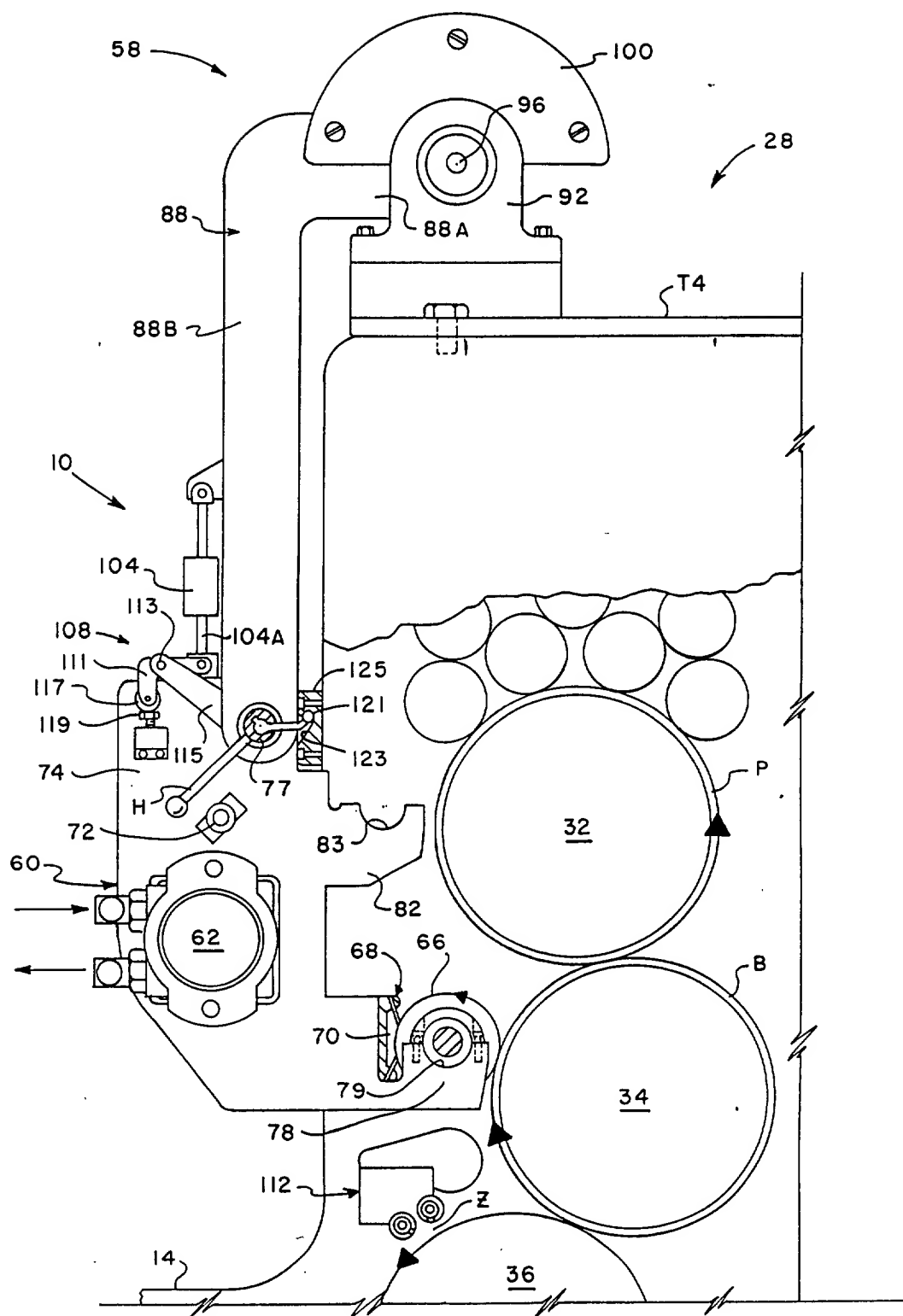
APPROVED	C.O.P.
DATE	CLASS
DRAFTSMAN	

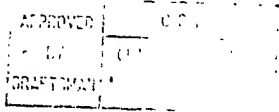
B6012
 RONALD M. RENDLEMAN
 HOWARD W. DEMOORE
 JOHN W. BIRD

08 435798

3/5

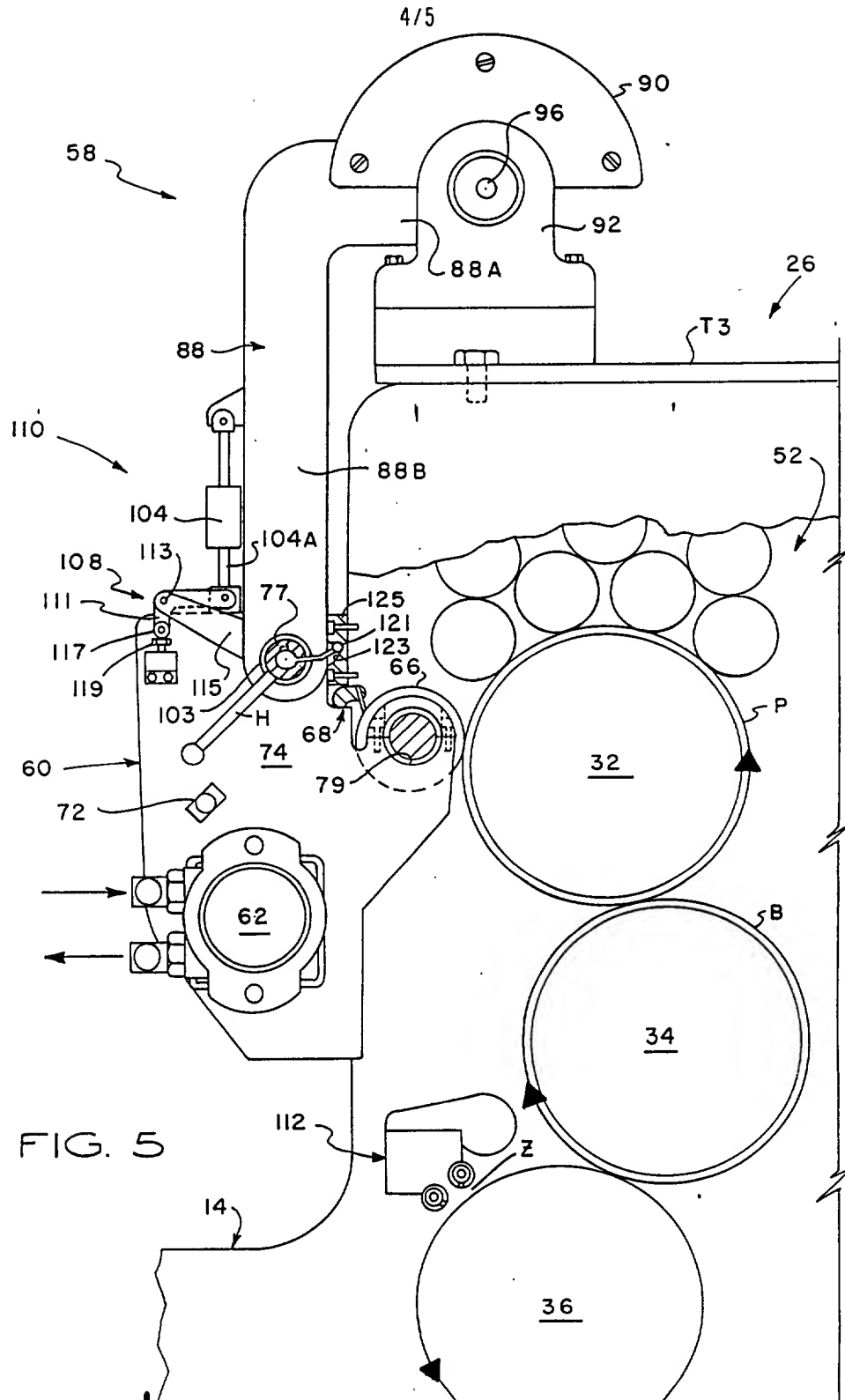
FIG. 3





B6012
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HOWARD W. DEMOORE
JOHN W. BIRD

08 435798



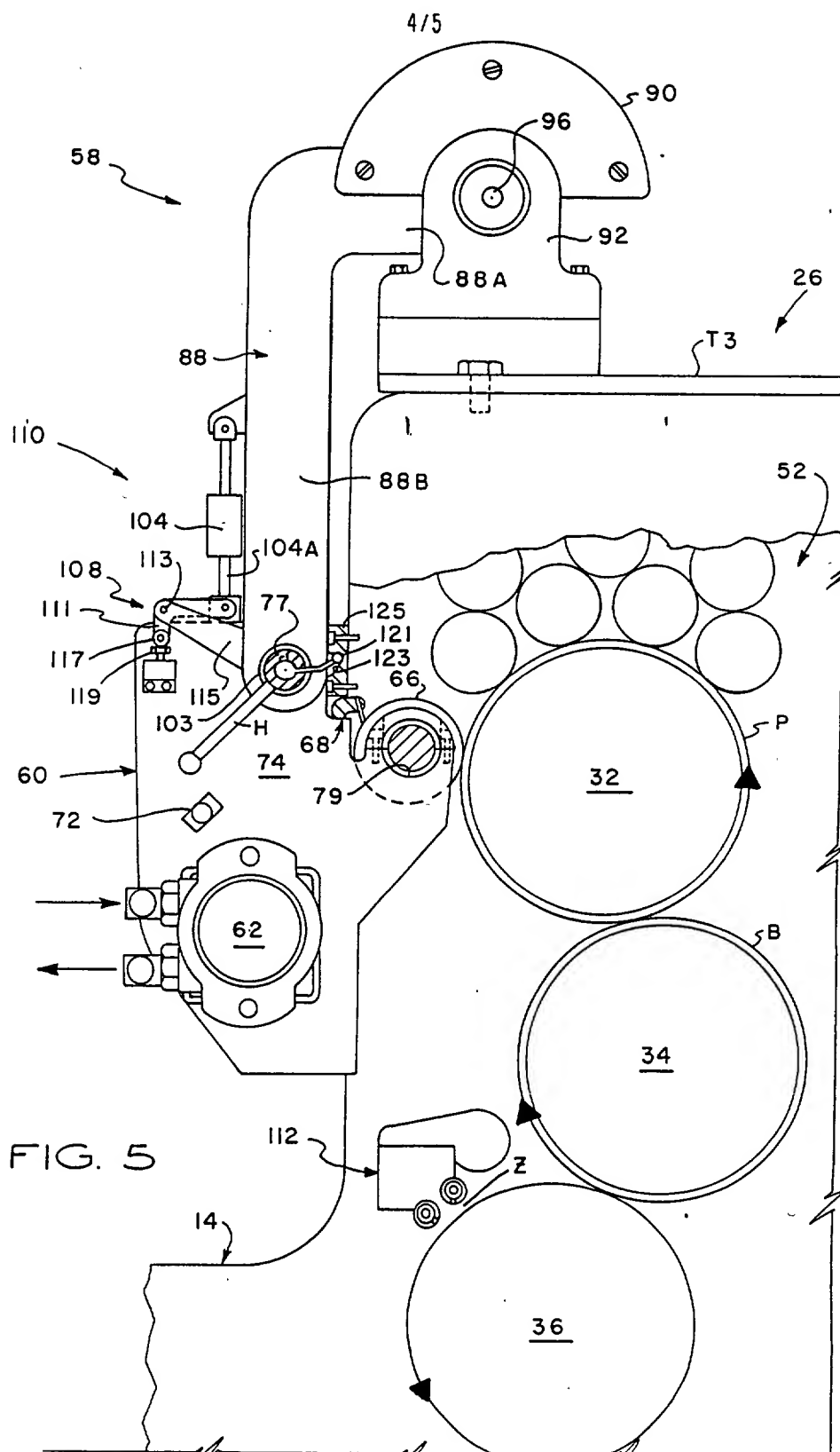


FIG. 5

FIG. 5

1-5
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101
 177
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 177

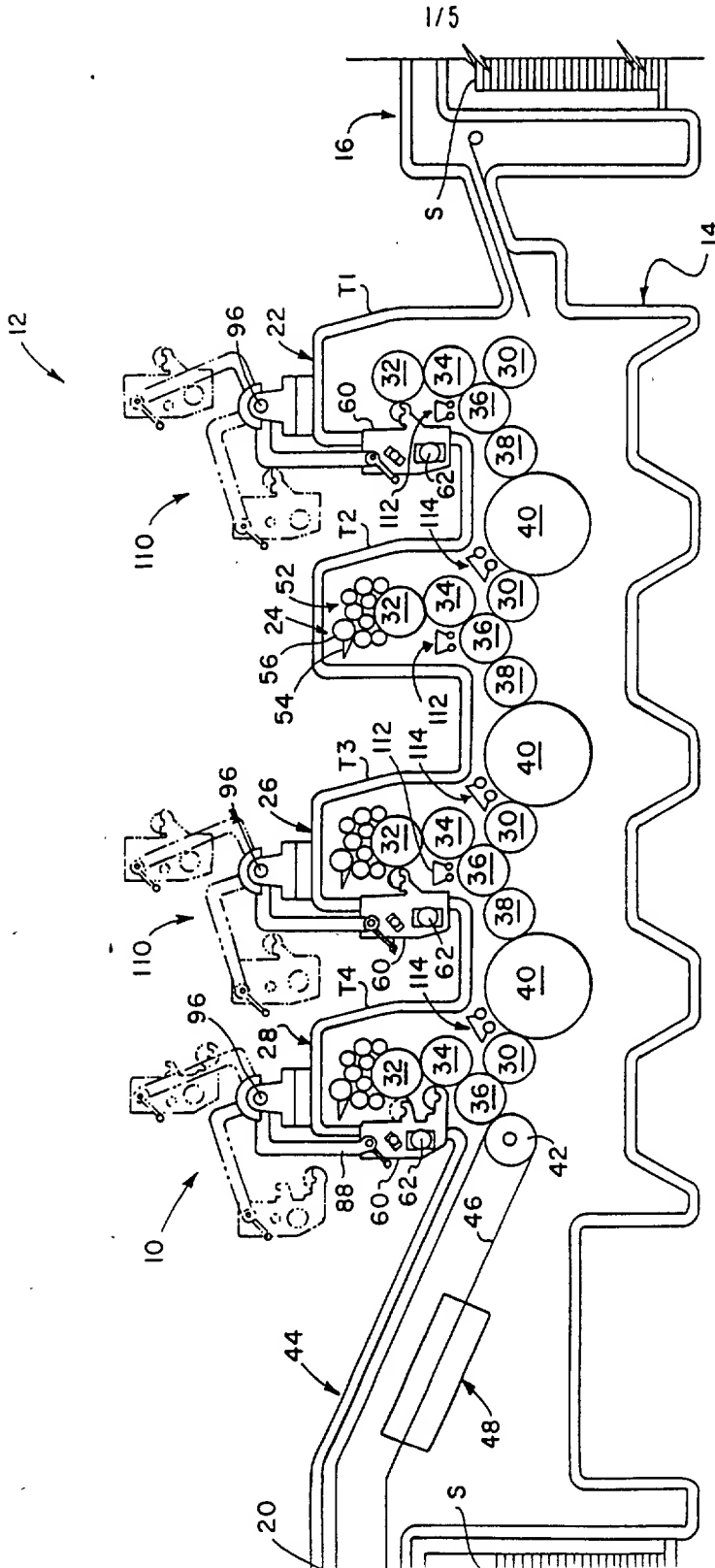
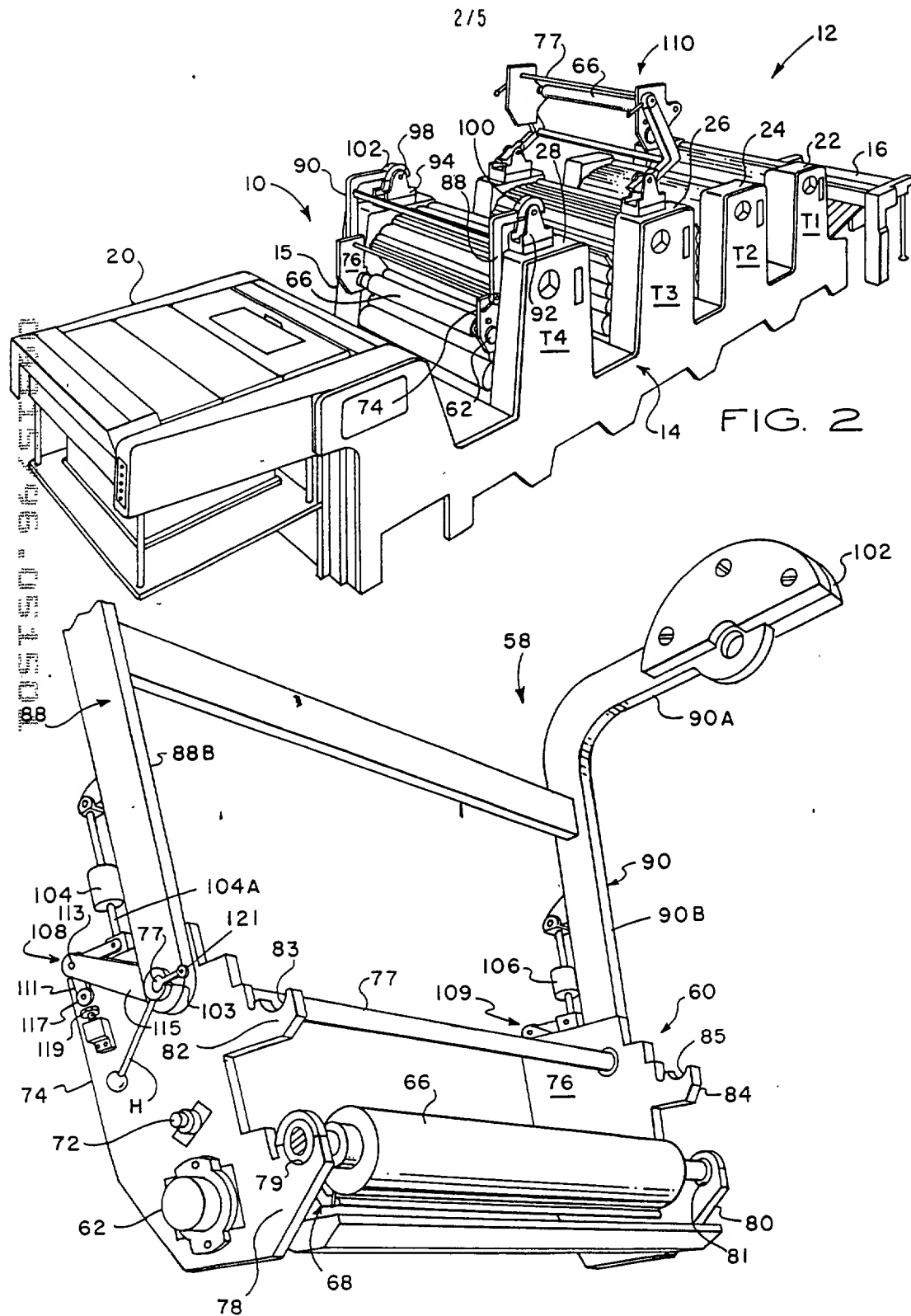


FIG. 1

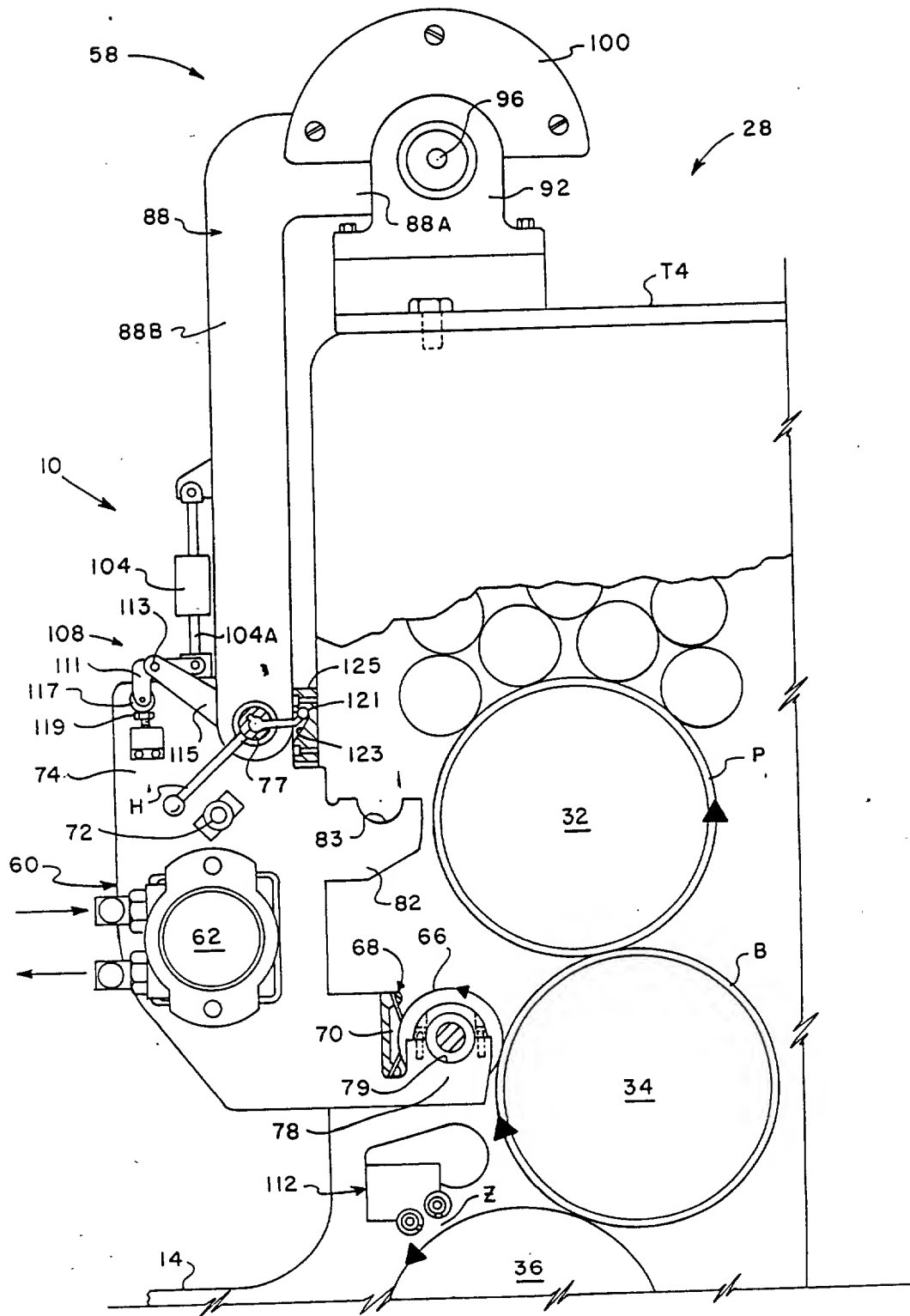
08 435798

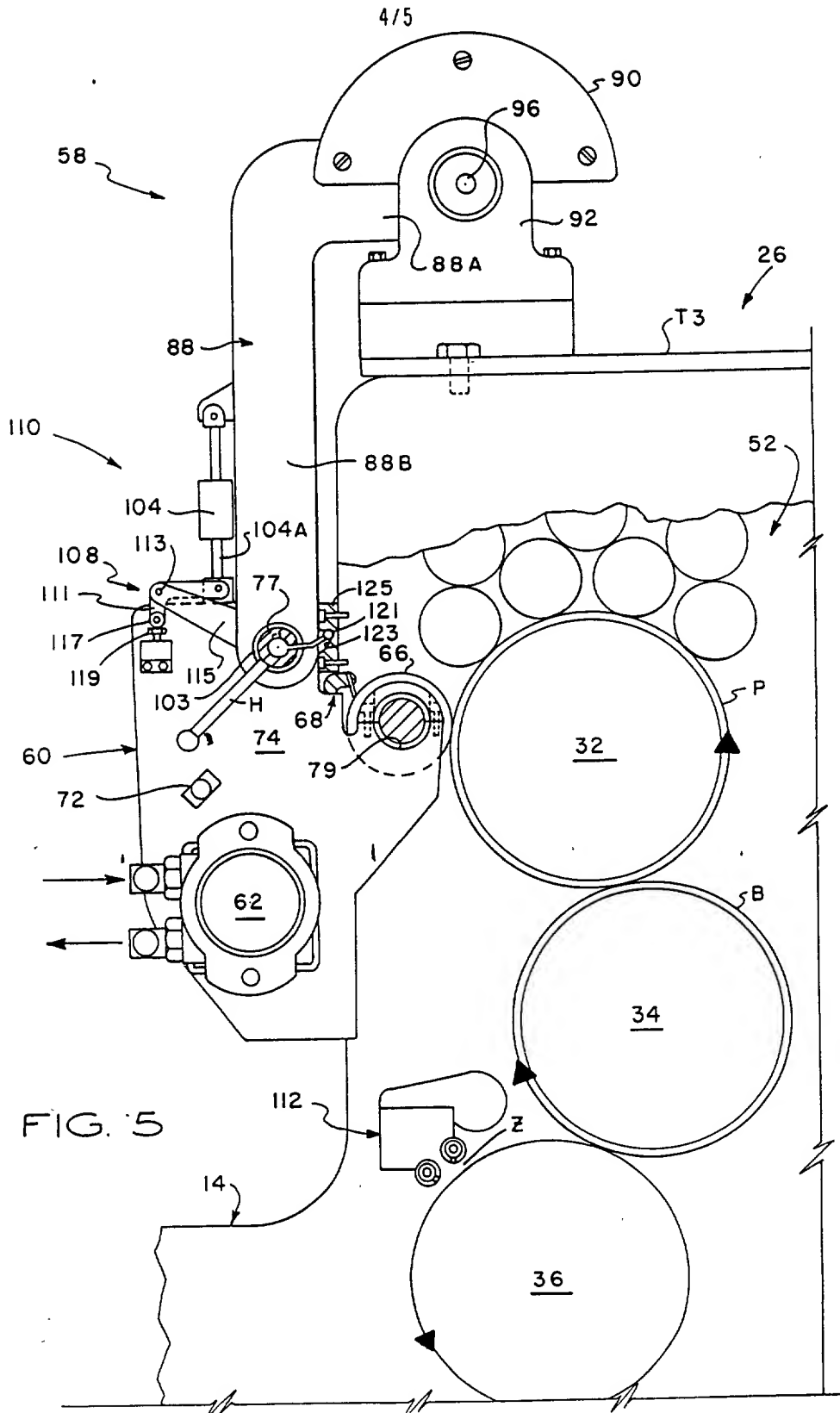


08 435798

3/5

FIG. 3



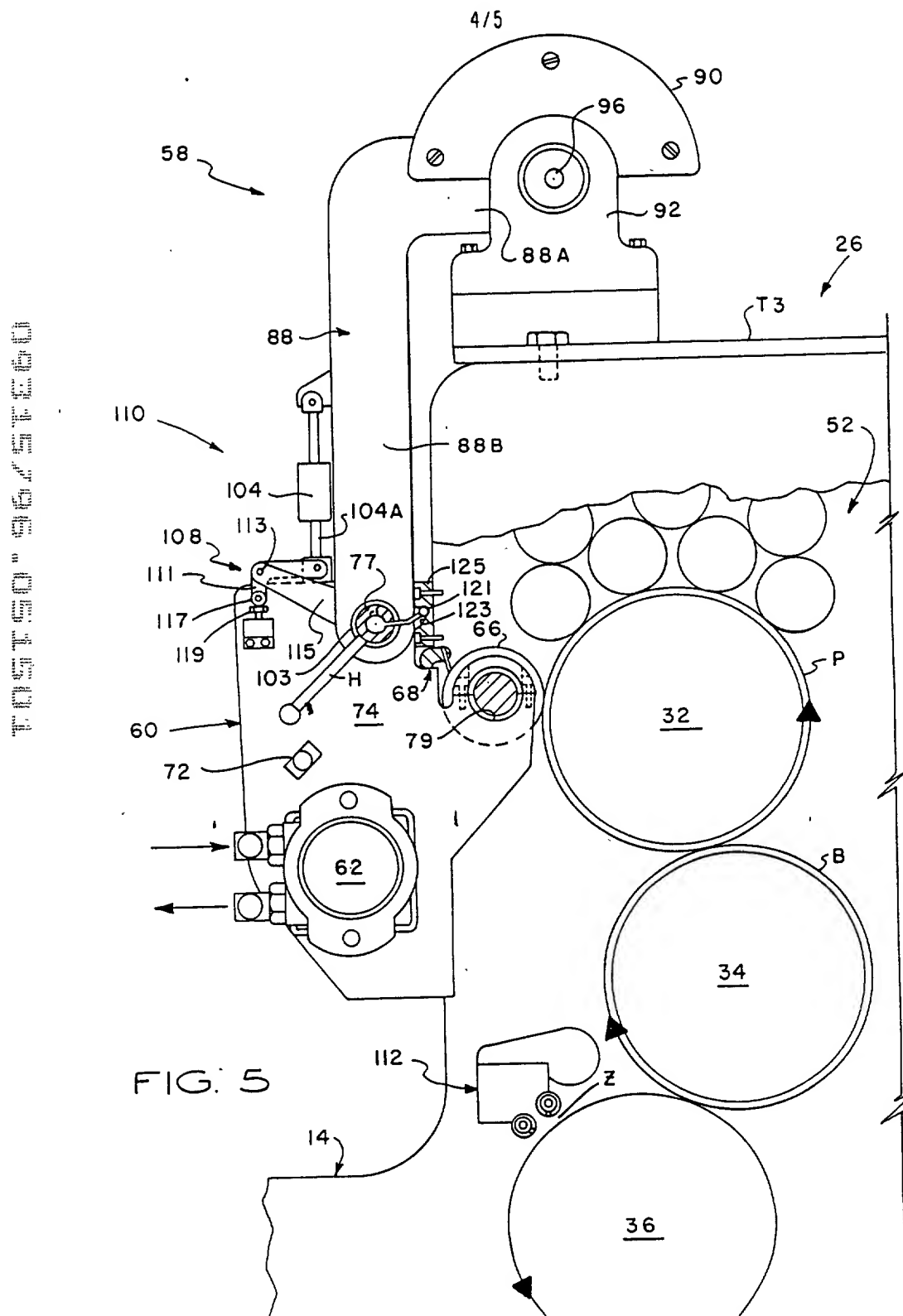


FILED

B6012

PRINT OF DRAWINGS
AS ORIGINAL FILED B6012
RONALD M. RENDLEMAN
HOWARD W. DEMOORE
JOHN W. BIRD

08 435798



094596-00104



**UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office**

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

SERIAL NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO.
09-1585-100	09-29-1977	LOK P. L. NGUYEN	00012

DENNIS T GRIGGS
ARIN GUMP STRAUSS MAUER & FIELD
1700 PACIFIC AVENUE SUITE 4100
DALLAS TX 75201-1010

F3M170007

FISHER, J. EXAMINER	
ART UNIT	PAPER NUMBER

DATE MAILED:

03/07/96

Please find below a communication from the EXAMINER in charge of this application.

Commissioner of Patents

RECEIVED

Office Action SummaryApplication No.
08/435,798Applicant(s)
Ronald M. Rendlemen et alExaminer
J. R. FisherGroup Art Unit
3307☐ Responsive to communication(s) filed on _____☐ This action is **FINAL**.☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire ONE month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims☒ Claim(s) 1-34 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.☐ Claim(s) _____ is/are rejected.☐ Claim(s) _____ is/are objected to.☒ Claims 1-34 are subject to restriction or election requirement.**Application Papers**☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.☐ The drawing(s) filed on _____ is/are objected to by the Examiner.☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.☐ The specification is objected to by the Examiner.☐ The oath or declaration is objected to by the Examiner.**Priority under 35 U.S.C. § 119.**☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been☐ received.☐ received in Application No. (Series Code/Serial Number) _____☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).**Attachment(s)**☐ Notice of References Cited, PTO-892☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____☐ Interview Summary, PTO-413☒ Notice of Draftsperson's Patent Drawing Review, PTO-948☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

Serial No. 08/435798

-2-

Art Unit 3307


Restriction to one of the following inventions, 35 U.S.C. 121, is required:

- Group I: Claims 1-23 drawn to an inking or coating apparatus classifiable in Class 101, subclass 350.
- Group II: Claims 24-34 drawn to a method for rotary offset printing classifiable in Class 101, subclass 483.

Inventions I and II are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (M.P.E.P. § 806.05(e)). In this case the apparatus as claimed (Group I) does not require the specific steps required by the claims of Group II and is useable apart therefrom.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Applicant is advised that the response to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed.


J. REED FISHER
PRIMARY EXAMINER
ART UNIT 3307

703 308-0525
May 3, 1996

RECEIVED - DEPT. OF COMMERCE

NOTICE OF DRAFTSPERSON'S PATENT DRAWING REVIEW

PTO Draftpersons review all originally filed drawings regardless of whether they are designated as formal or informal. Additionally, patent Examiners will review the drawings for compliance with the regulations. Direct telephone inquiries concerning this review to the Drawing Review Branch, 703-305-8404.

The drawings filed (insert date) 4/4/88, are

- A ☐ not objected to by the Draftsperson under 37 CFR 1.84 or 1.152.
 B ☐ objected to by the Draftsperson under 37 CFR 1.84 or 1.152 as indicated below. The Examiner will require submission of new, corrected drawings when necessary. Corrected drawings must be submitted according to the instructions on the back of this Notice.

1. DRAWINGS 37 CFR 1.84(a): Acceptable categories of drawings:

Black ink Color

- ☐ Not black solid lines Fig(s) _____
☐ Color drawings are not acceptable until petition is granted.
 Fig(s) _____

2. PHOTOGRAPHS 37 CFR 1.84(b)

- ☐ Photographs are not acceptable until petition is granted
 Fig(s) _____
☐ Photographs not properly mounted (must use bristol board or photographic double-weight paper). Fig(s) _____
☐ Poor quality (half-tone) Fig(s) _____

3. GRAPHIC FORMS 37 CFR 1.84 (d)

☐ Chemical or mathematical formula not labeled as separate figure.

- Fig(s) _____
☐ Group of waveforms not presented as a single figure, using common vertical axis with time extending along horizontal axis.
 Fig(s) _____

☐ Individuals waveform not identified with a separate letter designation adjacent to the vertical axis. Fig(s) _____

4. TYPE OF PAPER 37 CFR 1.84(c)

☐ Paper not flexible, strong, white, smooth, nonshiny, and durable.

- Sheet(s) _____
☐ Erasures, alterations, overwritings, interlineations, cracks, creases, and folds copy machine marks not accepted. Fig(s) _____
☐ Mylar, velum paper is not acceptable (too thin). Fig(s) _____

5. SIZE OF PAPER 37 CFR 1.84(f): Acceptable sizes:

- ☐ 21.6 cm. by 35.6 cm. (8 1/2 by 14 inches)
☐ 21.6 cm. by 33.1 cm. (8 1/2 by 13 inches)
☐ 21.6 cm. by 27.9 cm. (8 1/2 by 11 inches)
☐ 21.0 cm. by 29.7 cm. (DIN size A4)

☐ All drawing sheets not the same size. Sheet(s) _____

☐ Drawing sheet not an acceptable size. Sheet(s) _____

6. MARGINS 37 CFR 1.84(g): Acceptable margins:

Paper size

21.6 cm X 35.6 cm. (8 1/2 X 14 inches)	21.6 cm X 33.1 cm. (8 1/2 X 13 inches)	21.6 cm X 27.9 cm. (8 1/2 X 11 inches)	21.0 cm X 29.7 cm. (DIN Size A4)
T 5.1 cm. (2")	2.5 cm. (1")	2.5 cm. (1")	2.5 cm.
L .64 cm. (1/4")	.64 cm. (1/4")	.64 cm. (1/4")	2.5 cm.
R .64 cm. (1/4")	.64 cm. (1/4")	.64 cm. (1/4")	1.5 cm.
B .64 cm. (1/4")	.64 cm. (1/4")	.64 cm. (1/4")	1.0 cm.

Margins do not conform to chart above.

Sheet(s) _____

☐ Top (T) ☐ Left (L) ☐ Right (R) ☐ Bottom (B)

7. VIEWS 37 CFR 1.84(h)

REMINER: Specification may require revision to correspond to drawing changes

- ☐ All views not grouped together. Fig(s) _____
☐ Views connected by projection lines or lead lines.
 Fig(s) _____
☐ Partial views. 37 CFR 1.84(h) 2

☐ View and enlarged view not labeled separately or properly.

Fig(s) _____

☐ Sectional views. 37 CFR 1.84 (h) 3

☐ Hatching not indicated for sectional portions of an object.

Fig(s) _____

☐ Cross section not drawn same as view with parts in cross section with regularly spaced parallel oblique strokes. Fig(s) _____

8. ARRANGEMENT OF VIEWS 37 CFR 1.84(i)

☐ Words do not appear on a horizontal, left-to-right fashion when page is either upright or turned so that the top becomes the right side, except for graphs. Fig(s) _____

9. SCALE 37 CFR 1.84(k)

☐ Scale not large enough to show mechanism with crowding when drawing is reduced in size to two-thirds in reproduction.
 Fig(s) _____

☐ Indication such as "actual size" or scale 1/2" not permitted.
 Fig(s) _____

10. CHARACTER OF LINES, NUMBERS, & LETTERS 37 CFR 1.84(i)

☐ Lines, numbers & letters not uniformly thick and well defined, clean, durable, and black (except for color drawings).
 Fig(s) _____

11. SHADING 37 CFR 1.84(m)

☐ Solid black shading areas not permitted.

Fig(s) _____

☐ Shade lines, pale, rough and blurred. Fig(s) _____

12. NUMBERS, LETTERS, & REFERENCE CHARACTERS 37 CFR 1.84(p)

☐ Numbers and reference characters not plain and legible. 37 CFR 1.84(p)(1) Fig(s) _____

☐ Numbers and reference characters not oriented in same direction as the view. 37 CFR 1.84(p)(1) Fig(s) _____

☐ English alphabet not used. 37 CFR 1.84(p)(2)
 Fig(s) _____

☐ Numbers, letters, and reference characters do not measure at least .32 cm. (1/8 inch) in height. 37 CFR(p)(3)
 Fig(s) _____

13. LEAD LINES 37 CFR 1.84(q)

☐ Lead lines cross each other. Fig(s) _____

☐ Lead lines missing. Fig(s) _____

14. NUMBERING OF SHEETS OF DRAWINGS 37 CFR 1.84(i)

☐ Sheets not numbered consecutively, and in Arabic numerals, beginning with number 1. Sheet(s) _____

15. NUMBER OF VIEWS 37 CFR 1.84(u)

☐ Views not numbered consecutively, and in Arabic numerals, beginning with number 1. Fig(s) _____

☐ View numbers not preceded by the abbreviation Fig.
 Fig(s) _____

16. CORRECTIONS 37 CFR 1.84(w)

☐ Corrections not made from prior PTO-948.

Fig(s) _____

17. DESIGN DRAWING 37 CFR 1.152

☐ Surface shading shown not appropriate. Fig(s) _____

☐ Solid black shading not used for color contrast.
 Fig(s) _____

COMMENTS:

TOPTON SQUARE



PATENT

Attorney Docket
No. B6012

April
6-26-96
#3
Electe

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of)
RONALD M. RENDLEMAN, ET AL)
Serial No.: 08/435,798)
Filed: 05/04/95)
For: RETRACTABLE INKING/COATING)
APPARATUS HAVING FERRIS MOVE-)
MENT BETWEEN PRINTING UNITS)

Group Art Unit 3307

Examiner:
J. R. Fisher

Box NON-FEE AMENDMENT
Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

ELECTION OF INVENTIONS - WITHOUT TRAVERSE

This is in response to the Office Action (Paper No. 2)
mailed May 7, 1996.

In compliance with the requirement for restriction,
Applicant hereby elects the subject matter of the Group I
invention, claims 1-23.

Applicant reserves the right to file a divisional
application on the non-elected subject matter.

Respectfully submitted,

Date:

June 7, 1996

Dennis T. Griggs
Dennis T. Griggs
Registration No. 27,790
Attorney for Applicant

North Dallas Bank Tower, Suite 1202
12900 Preston Road, LB-38
Dallas, Texas 75230
(214) 969-2747

CERTIFICATE OF MAILING (37 C.F.R. §1.8a)

I hereby certify that this ELECTION OF INVENTIONS-WITHOUT TRAVERSE (along with any paper referred to as being attached or enclosed) is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to: Box NON-FEE AMENDMENT, Assistant Commissioner for Patents, Washington, D.C. 20231.

Kathy Longenecker

(Typed name of person mailing paper)

Kathy Longenecker

(Signature of person mailing paper)

Date of Deposit:

June 7, 1996

RECEIVED - JUNE 10 1996

RETURNED TO SENDER



Q. 3307 Spruell
7-16-96
#4 / Chg.
of Address

PATENT

Attorney Docket
No. B6012

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of

RONALD M. RENDLEMAN ET AL

Serial No.: 08/435,798

Filed: 05/04/95

**For: RETRACTABLE INKING/COATING
APPARATUS HAVING FERRIS MOVE-
MENT BETWEEN PRINTING UNITS**

Group Art Unit _____

Examiner:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

Sir:

ATTORNEY CHANGE OF ADDRESS

Applicant requests that all correspondence regarding this patent application be directed to:

Dennis T. Griggs
Attorney at Law
North Dallas Bank Tower, Suite 1202
12900 Preston Road, LB-38
Dallas, Texas 75230

Please direct all telephone calls to:

Dennis T. Griggs

(214) 458-8559

Respectfully submitted,

Date:

April 17, 1996

Dennis T. Griggs
Registration No. 27,790
Attorney for Applicant

REF ID: A626260



N. Martin
PATENT 7-25-96

Attorney Docket

No. B6012

*5 Prior art
Paper*

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

RECEIVED
JUL 15 1996
GROUP 3303

In re patent application of)

RONALD M. RENDLEMAN, ET AL)

Serial No. 08/435,798)

Filed: 05/04/95)

For: RETRACTABLE INKING/COATING)
APPARATUS HAVING FERRIS)
MOVEMENT BETWEEN PRINTING)
UNITS)

Group Art Unit 3303

Examiner:

RECEIVED
JUL 15 1996
GROUP 130

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

TRANSMITTAL OF INFORMATION DISCLOSURE STATEMENT
WITHIN THREE MONTHS OF FILING OR
BEFORE MAILING OF FIRST OFFICE ACTION

The Information Disclosure Statement submitted herewith is being filed within three months of the filing date of the application or date of entry into the national stage of an international application or before the mailing date of a first Office Action on the merits, whichever event occurs last. 37 CFR 1.97(b).

Respectfully submitted,

Date: June 24, 1996 Dennis T. Griggs
Dennis T. Griggs
Registration No. 27,790
Attorney for Applicant

North - Las Bank Tower, Suite 1202
1296 Preston Road, LB-38
Dallas, Texas 75230
(214) 458-8559

CERTIFICATE OF MAILING (37 CFR 1.8a)

I hereby certify that this TRANSMITTAL OF INFORMATION DISCLOSURE STATEMENT (along with any paper referred to as being attached or enclosed) is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231.

Date: 6/21/96

Kathy Longenecker
(Typed name of person mailing paper)
Kathy Longenecker
(Signature of person mailing paper)

RECEIVED
JUN 21 1996
FBI - DALLAS



PATENT

Attorney Docket

No. B6012

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of)
RONALD M. RENDLEMAN, ET AL)
Serial No. 08/435,798)
Filed: 05/04/95)
For: RETRACTABLE INKING/COATING)
APPARATUS HAVING FERRIS)
MOVEMENT BETWEEN PRINTING)
UNITS)

Group Art Unit 1303

Examiner:

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

INFORMATION DISCLOSURE STATEMENT

The following sections are submitted for this Informa-
tion Disclosure Statement:

1. X Preliminary Statements
2. X FORM PTO - 1449
3. Statement As To Information Not Found in Patents or Publications
4. Identification Of Prior Application In Which Informa-
tion Was Cited And For Which No Copies Are Submitted
Or Need Be Submitted
5. Cumulative Patents or Publications
6. Concise Explanation of Non-English Language Listed
Information Items
7. Translation(s) of Non-English Language Documents

8. X Copies of Listed Information Items Accompanying This Statement

9. X Identification of Person(s) Making This Information Disclosure Statement

Section 1. Preliminary Statements

Applicant submits herewith patents, publications or other information which may be material to the examination of this application and for which there may be a duty to disclose in accordance with 37 CFR 1.56.

The filing of this Information Disclosure Statement shall not be construed as a representation that a search has been made (37 CFR 1.56(g)), or as an admission that the information cited is, or is considered to be, material to patentability.

The filing of this Information Disclosure Statement shall not be construed as an admission against interest in any manner.

Section 2. FORM PTO - 1449

Form PTO - 1449 (3 pages) are enclosed herewith.

Section 3. Statement As To Information Not Found In Patents Or Publications (Information not listed in PTO 1449)

Section 4. Identification Of Prior Application In Which Information Was Cited And for Which No Copies Are Submitted Or Need Be Submitted

This application relies, under 35 U.S.C. 120, on the earlier filing date of prior application S/N _____, filed on _____.

Section 5. Cumulative Patents or Publications

_____ is cumulative of the following patents or publications listed on Form PTO 1449:

In accordance with 37 CFR 1.98(c) a copy of only _____ is being submitted with

109F50" 962F50"

this information disclosure statement.

Section 6. Translation(s) of Non-English Language Documents

— Submitted herewith is an English translation of the following foreign language patents, publications or information or of those portions of those patents, publications or information considered to be material.

— No English language translations of the foreign language patents, publications or information or parts thereof are readily available, except for those listed above.

— The following foreign language documents submitted are believed to be the equivalent or substantial equivalent of the English language documents identified below, which are also submitted herewith.

Section 7. Concise Explanation of Non-English Language Listed Information Items

Section 8. Copies of Listed Information Items Accompanying This Statement

Legible copies of all items listed in Form PTO-1449 accompany this information statement.

— Exception(s) to above

— Items in prior application from which an earlier filing date is claimed for this application as identified in Section 4.

— Cumulative patents or publications identified in Section 5.

Section 9. Identification of Person(s) Making This INFORMATION DISCLOSURE STATEMENT

The person making this statement is the attorney who signs below on the basis of:

— information supplied by the inventor(s)

— information supplied by an individual associated with the filing and prosecution of this application (37 CFR 1.56(c))

X information in the attorney's file

RECEIVED 10/10/70

It is respectfully requested that the references identified in this Information Disclosure Statement be considered by the Examiner, be made a part of the official record, and be cited in the issued patent.

Respectfully submitted,

Date: June 21, 1996 Dennis T. Griggs
Dennis T. Griggs
Registration No. 27,790
Attorney for Applicant

North Dallas Bank Tower, Suite 1202
12900 Preston Road, LB-38
Dallas, Texas 75230
(214) 458-8559

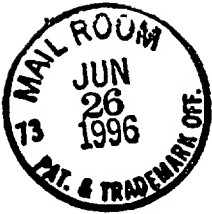
CERTIFICATE OF MAILING (37 CFR 1.8a)

I hereby certify that this INFORMATION DISCLOSURE STATEMENT (along with any paper referred to as being attached or enclosed) is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231.

Date: 6/21/96 Kathy Longenecker
(Typed name of person mailing paper)
(Signature of person mailing paper)

RECEIVED JUN 21 1996

THAT THE



W. J. Martin
PATENT 7-25-96

Attorney Docket

No. B6012

*6/Suppl
Prior
act*

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of)

RONALD M. RENDLEMAN, ET AL)

Serial No. 08/435,798)

Filed: 05/04/95)

For: RETRACTABLE INKING/COATING)
APPARATUS HAVING FERRIS)
MOVEMENT BETWEEN PRINTING)
UNITS)

Group Art Unit 1303

Examiner:

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

TRANSMITTAL OF SUPPLEMENTAL INFORMATION DISCLOSURE
STATEMENT WITHIN THREE MONTHS OF FILING OR
BEFORE MAILING OF FIRST OFFICE ACTION

The Supplemental Information Disclosure Statement submitted
herewith is being filed within three months of the filing date
of the application or date of entry into the national stage of
an international application or before the mailing date of a
first Office Action on the merits, whichever event occurs last.
37 CFR 1.97(b).

Respectfully submitted,

Date: June 24, 1996 *Dennis T. Griggs*
Dennis T. Griggs
Registration No. 27,790
Attorney for Applicant



PATENT

Attorney Docket

No. B6012

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of)
)
RONALD M. RENDLEMAN, ET AL)
)
Serial No. 08/435,798)
)
Filed: 05/04/95)
)
For: RETRACTABLE INKING/COATING)
)
APPARATUS HAVING FERRIS)
)
MOVEMENT BETWEEN PRINTING)
)
UNITS)

Group Art Unit 1303

Examiner:

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

The following sections are submitted for this
Supplemental Information Disclosure Statement:

1. X Preliminary Statements
2. X FORM PTO - 1449
3. Statement As To Information Not Found in Patents or
Publications
4. Identification Of Prior Application In Which Informa-
tion Was Cited And For Which No Copies Are Submitted
Or Need Be Submitted
5. Cumulative Patents or Publications
6. Concise Explanation of Non-English Language Listed
Information Items
7. Translation(s) of Non-English Language Documents

RECEIVED JUN 26 1996

RECEIVED - 06-29-60

8. X Copies of Listed Information Items Accompanying This Statement
9. X Identification of Person(s) Making This Information Disclosure Statement

Section 1. Preliminary Statements

Applicant submits herewith patents, publications or other information which may be material to the examination of this application and for which there may be a duty to disclose in accordance with 37 CFR 1.56.

The filing of this Information Disclosure Statement shall not be construed as a representation that a search has been made (37 CFR 1.56(g)), or as an admission that the information cited is, or is considered to be, material to patentability.

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Section 4. Identification Of Prior Application In Which Information Was Cited And for Which No Copies Are Submitted Or Need Be Submitted

This application relies, under 35 U.S.C. 120, on the earlier filing date of prior application S/N _____, filed on _____.

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_____ is cumulative of the following patents or publications listed on Form PTO 1449:

In accordance with 37 CFR 1.98(c) a copy of only _____ is being submitted with

this information disclosure statement.

Section 6. Translation(s) of Non-English Language Documents

- Submitted herewith is an English translation of the following foreign language patents, publications or information or of those portions of those patents, publications or information considered to be material.
- No English language translations of the foreign language patents, publications or information or parts thereof are readily available, except for those listed above.
- The following foreign language documents submitted are believed to be the equivalent or substantial equivalent of the English language documents identified below, which are also submitted herewith.

Section 7. Concise Explanation of Non-English Language Listed Information Items

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- Exception(s) to above
 - Items in prior application from which an earlier filing date is claimed for this application as identified in Section 4.
 - Cumulative patents or publications identified in Section 5.

Section 9. Identification of Person(s) Making This INFORMATION DISCLOSURE STATEMENT

The person making this statement is the attorney who signs below on the basis of:

- information supplied by the inventor(s)
- information supplied by an individual associated with the filing and prosecution of this application (37 CFR 1.56(c))
- X information in the attorney's file

TOPT-33 3525160

It is respectfully requested that the references identified in this Information Disclosure Statement be considered by the Examiner, be made a part of the official record, and be cited in the issued patent.

Respectfully submitted,

Date: June 24, 1996 Dennis T. Griggs
Dennis T. Griggs
Registration No. 27,790
Attorney for Applicant

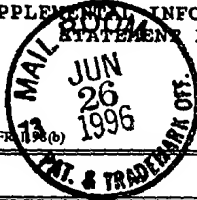
North Dallas Bank Tower, Suite 1202
12900 Preston Road, LB-38
Dallas, Texas 75230
(214) 458-8559

CERTIFICATE OF MAILING (37 CFR 1.8a)

I hereby certify that this SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT (along with any paper referred to as being attached or enclosed) is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231.

Date: 06/24/96 Kathy Longenecker
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(Signature of person mailing paper)

FORM PTO-1449	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTY DOCKET NO. B6012	SERIAL NO. 08/435,798
SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT BY APPLICANT		APPLICANT Ronald M. Rendleman, et al	
		FILING DATE 05/04/95	GROUP 1303



U.S. PATENT DOCUMENTS

EXAMINER INITIAL	PATENT NUMBER	ISSUE DATE	PATENTEE	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
<i>RB</i>	4,421,027	12/83	Fischer	101	142	
<i>RB</i>	4,222,325	09/80	Edwards	101	137	
<i>RB</i>	4,779,557	10/88	Frazzitta	118	46	
	5,209,179	05/93	Herbert et al	118	46	

FOREIGN PATENTS OR PUBLISHED FOREIGN PATENT APPLICATIONS

	DOCUMENT NUMBER	PUBLI- CATION DATE	COUNTRY OR PATENT OFFICE	CLASS	SUBCLASS	TRANSLATION	
						YES	NO

OTHER DOCUMENTS (Including Author, Title, Date, Relevant Pages, Name of Publication)

EXAMINER	<i>Fischer</i>	DATE CONSIDERED <i>8/9/96</i>

EXAMINER: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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**UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office**

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SERIAL NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO.
08/19/96	05/04/95	DENNIS T GRIGGS	F3M170819

FISHER, J

F3M170819

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EXAMINER	
ART UNIT	PAPER NUMBER
3307	

DATE MAILED: 08/19/96

Please find below a communication from the EXAMINER in charge of this application.

Commissioner of Patents

08/19/96 08/19/96

Office Action Summary

Application No.

08/435,798

Applicant(s)

Ronald M. Rendlemen et al

Examiner

J. R. Fisher

Group Art Unit

3307

☒ Responsive to communication(s) filed on Jun 26, 1996☐ This action is **FINAL**.☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire THREE month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims☒ Claim(s) 1-34 is/are pending in the application.Of the above, claim(s) 24-34 is/are withdrawn from consideration.☐ Claim(s) _____ is/are allowed.☒ Claim(s) 1-23 is/are rejected.☐ Claim(s) _____ is/are objected to.☐ Claims _____ are subject to restriction or election requirement.**Application Papers**☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.☐ The drawing(s) filed on _____ is/are objected to by the Examiner.☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.☐ The specification is objected to by the Examiner.☐ The oath or declaration is objected to by the Examiner.**Priority under 35 U.S.C. § 119**☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.☐ received in Application No. (Series Code/Serial Number) _____.☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).**Attachment(s)**☒ Notice of References Cited, PTO-892☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 5, 6☐ Interview Summary, PTO-413☐ Notice of Draftsperson's Patent Drawing Review, PTO-948☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

Applicant's election without traverse of the subject matter of Group I in Paper No.3 is acknowledged.

Claims 24-34 are withdrawn from further consideration by the examiner, 37 C.F.R. § 1.142(b) as being drawn to a nonelected invention. Election was made **without** traverse in Paper No. 3.

Claims 3, 22 and 23 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is no adequate disclosure as to what roller structure and roller fabrication is meant by "an anilox roller having a resilient transfer surface." No examples are disclosed as to how and in what manner a resilient transfer surface is incorporated with a anilox roller.

Claims 1-23 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Various claim recitations are purely functional in format without sufficient antecedent structure to support such functional language. For example only:

- * In claim 1, the functional recitation of an end portion "pivotally coupled" is not determinative of a definite structural cooperation between the parts which are

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coupled so that it can be determined how and in what structural manner the parts are functionally interrelated.

* In claims 12 and 13, the recitation of the support apparatus "...being movably coupled...for supporting the inking/coating apparatus for movement to an operative position...and for movement to a retracted position..." is similarly indefinite as to a positive and definite structural relationship between the parts. There is no antecedent structure in the claim which gives structural support and meaning to the recitation "movably coupled" and "for movement."

* Claim 17, recites a carriage assembly "...movably coupled...for producing Ferris wheel movement of the inking/coating apparatus... There is no antecedent structure in the claim which gives structural support and meaning to the recitation "movably coupled" and "Ferris wheel movement" as recited. The term "Ferris" is indefinite as to the metes and bounds of definite structure. Claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Danley*, 120 USPQ 528, 531 (CCPA 1959). "Apparatus claims cover what a device is, not what a device does." (emphasis in original) *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990).

* Claim 12 recites two devices in an alternative format: "...at least one printing unit or dedicated coating unit..." The body of the claim then recites a support

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-4-

Art Unit 3307

apparatus mounted on "the printing unit tower." The specific reference to one of the alternatively recited devices ("printing unit") is indefinite since it purports to positively specify that device to the exclusion of the other device. The resulting claim is thus indefinite as to scope and does not clearly set forth the metes and bounds of the patent protection desired.

* In claim 12, the recitation of "a plate or a blanket" ("...is engagable with a plate or a blanket on the cylinder...") is inferential in format. The plate and blanket are recited in inferential format, there being no antecedent support for the same.

The term "inking/coating" as recited throughout the claims is indefinite as to meaning.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 12 is rejected under 35 U.S.C. § 102(b) as being anticipated by Bird (4,841,903).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said

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subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4, 5, 11, 12, 13, 14, 15, 17, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bird (4,841,903) in view of Sarda (4,889,051). Bird (4,841,903) discloses an inking or coating apparatus for applying ink or coating material to a plate mounted on a plate cylinder or to a blanket mounted on the blanket cylinder and including a carriage assembly having a support arm that is movable to an operative position in which the inking or coating apparatus is suspended laterally adjacent to the plate and blanket cylinders and being movable to a retracted position in which the inking or coating apparatus is elevated with respect to the plate and blanket cylinders. Sarda (4,889,051) discloses a carriage assembly including a support arm having a first end portion pivotally coupled to a printing unit tower and a second end portion pivotally coupled to an inking apparatus, the carriage assembly being movable to an operative position in which the inking apparatus is suspended laterally adjacent to the plate and blanket cylinder and being movable to a retracted position in which the ink apparatus is elevated with respect to the plate and blanket cylinders. It would have been obvious to one having ordinary skill in the art at the time the invention was made to broadly utilize a carriage assembly apparatus such as exemplified by Sarda (4,889,051) for providing the interrupting and engagement movements for the carriage assembly in Bird (4,841,903). The motivation would have involved merely the desire to obtain the

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Art Unit 3307

expected and desired motion and movement capability of the assembly as disclosed by Sarda (4,889,051). With respect to claim 4, the broadly recited counterweight does not structurally define over the counterweight function performed by the linkage arms for stabilizing the movement of the support arm in Sarda (4,889,051) as applied. With respect to claim 5, Sarda (4,889,051) discloses a power actuator 29. With respect to claims 14 and 15, Bird (4,841,903) discloses a dryer 25 mounted adjacent the impression cylinder for discharging heated air onto a freshly printed substrate and an extractor 28 coupled to the dryer for extracting hot air and moisture from an exposure zone.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bird (4,841,903) in view of Sarda (4,889,051), further in view of Koehler et al (4,934,305). It would have been obvious to one having ordinary skill in the art at the time the invention was made to broadly utilize any conventional latching mechanism for securing the carriage assembly in Bird, as applied; for example, such as the latching components 60, 61 as disclosed by Koehler et al (4,934,305). The motivation would have involved the desire to secure the carriage assembly for the reasons as taught by Koehler et al (4,934,305).

Claim 17 is rejected under 35 U.S.C. § 102(b) as being anticipated by Sarda (4,889,051). As broadly claimed, Sarda (4,889,051) discloses an inking apparatus for applying ink to a blanket mounted on the blanket cylinder and a

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Art Unit 3307

carriage assembly movably coupled to the tower for producing a "Ferris wheel movement" whereby the inking apparatus is suspended laterally adjacent to the blanket cylinder and a retracted position in which the inking apparatus is elevated with respect to the blanket cylinder.

Claims 2, 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bird (4,841,903) in view of Sarda (4,889,051) as applied to claim 1, further in view of DiRico (4,685,414). Bird (4,841,903) further discloses an applicator roller for contacting either the plate cylinder or the blanket cylinder. DiRico (4,685,414) is applied to show conventional applicator structure comprising a doctor blade and applicator roller in fluid communication with a fluid reservoir. It would have been obvious to one having ordinary skill in the art at the time the invention was made to broadly utilize conventional doctor blade and applicator roller structure in Bird (4,841,903), for example such as exemplified by DiRico (4,685,414), if in fact such is not inherent in Bird (4,841,903). The motivation would have involved merely the selection of equivalent fluid application components so as to obtain the expected and desired function therein.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bird (4,841,903) in view of Sarda (4,889,051) and DiRico (4,685,414), as applied to claim 2, further in view of each of Rhorer (3,360,393) and Goettsch (2,531,036). It would have been obvious to one having ordinary skill in the art at the time the

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invention was made to utilize a conventional resilient surface on the anilox applicator roller in Bird (4,841,903), as applied, especially in view of each of Rhorer (3,360,393) and Goettsch (2,531,036) who each discloses that it is old to utilize a resilient transfer surface on an anilox type applicator roller. The motivation would have been so as to obtain the desired fluid function from the use of a resilient transfer surface.

Claims 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bird (4,841,903) in view of Sarda (4,889,051), as applied to claim 1, further in view of Rodi (5,115,741). It would have been obvious to one having ordinary skill in the art at the time the invention was made to place the dryer devices in Bird (4,841,903) at any desired location including at a location disposed adjacent to the transfer cylinder for discharging heated air onto a freshly printed or coated substrate; for example, if such were desired in addition to the locations defined therein. This is especially so in view of Rodi (5,115,741) who teaches that it is conventional to locate a dryer adjacent to a transfer cylinder. The motivation would have involved merely the selection of conventional dryer locations so as to obtain the expected function therefrom.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bird (4,841,903) in view of Sarda (4,889,051), as applied to claim 1, further in view of each of Rhorer (3,360,393) and Goettsch (2,531,036). It would have been obvious

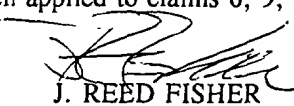
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Art Unit 3307

to one having ordinary skill in the art at the time the invention was made to utilize a conventional resilient surface on the applicator roller in Bird (4,841,903) especially in view of each of Rhorer (3,360,393) and Goettsch (2,531,036) who each discloses that it is old to utilize a resilient transfer surface on an applicator roller. The motivation would have been so as to obtain the expected fluid function from the use of a resilient transfer surface.

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bird (4,841,903) in view of Sarda (4,889,051), as applied to claim 1, further in view of each of Rhorer (3,360,393) and Goettsch (2,531,036). It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a conventional resilient surface on the anilox applicator roller in Bird (4,841,903), especially in view of each of Rhorer (3,360,393) and Goettsch (2,531,036) who each discloses that it is old to utilize a resilient transfer surface on an anilox type applicator roller. The motivation would have been so as to obtain the desired fluid function from the use of a resilient transfer surface.

Prior art has not been applied to claims 6, 9, 18, 19, and 21.


J. REED FISHER
PRIMARY EXAMINER
ART UNIT 3307

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Ronald M. Rendlemen, et al.

Serial No.: 08/435,798

Filed: May 4, 1995

Group Art Unit: 3307

Examiner: J.R. Fisher

For: RETRACTABLE INKING/COATING APPARATUS
HAVING FERRIS MOVEMENT BETWEEN PRINTING
UNITS

Reg. Ct.
Tune

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Spruell
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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231 on January 21, 1997
Date of Deposit

William R. Gustavson, Registration No. 29,160
Name of Applicant, Assignee, or
Registered Representative

Signature

January 21, 1997

Assistant Commissioner of
Patents and Trademarks
Washington, D.C. 20231

REQUEST FOR AMENDMENT OF PATENT APPLICATION
AUTHORITY OF SECRETARY OF COMMERCE FOR
L. Spruell

Dear Sir:

L. Spruell
Class, Group 330

AMENDMENT

NOTIFIED

This amendment is in response to the Office Action mailed August 19, 1996.
Please amend the application as follows.

IN THE CLAIMS

Please amend the claims as follows:

1. (Amended) In a printing press of the type having side frame members forming a printing unit tower on which a plate cylinder and blanket cylinder are supported for rotation, the improvement comprising:

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inking/coating apparatus for applying ink or coating material directly to a plate mounted on the plate cylinder or directly to a blanket mounted on the blanket cylinder when the inking/coating apparatus is in an operative position; and[,]

a carriage assembly including a support arm having a first end portion pivotally mounted [coupled] to the printing unit tower and a second end portion pivotally mounted [coupled] to the inking/coating apparatus, the carriage assembly being movable to an operative position in which the inking/coating apparatus is suspended laterally adjacent to the plate and blanket cylinders, and being movable to a retracted position in which the inking/coating apparatus is elevated with respect to the plate and blanket cylinders.

6. (Amended) In a printing press of the type having side frame members forming a printing unit tower on which a plate cylinder and blanket cylinder are supported for rotation, the improvement comprising:

inking/coating apparatus for applying ink or coating material to a plate mounted on the plate cylinder or to a blanket mounted on the blanket cylinder when the inking/coating apparatus is in an operative position;

a carriage assembly including a support arm having a first end portion pivotally mounted to the printing unit tower and a second end portion pivotally mounted to the inking/coating apparatus, the carriage assembly being movable to an operative position in which the inking/coating apparatus is suspended laterally adjacent to the plate and blanket cylinders, and being movable to a retracted position in which the inking/coating apparatus is elevated with respect to the plate and blanket cylinders;

a power actuator pivotally coupled to the support arm, the power actuator having a power transfer arm which is extendable and retractable;

apparatus coupled to the power transfer arm for converting extension or retraction movement of the power transfer arm into pivotal movement of the inking/coating apparatus relative to the support arm:

20 [The invention as set for the Claim 5, in which] the movement converting apparatus comprising [comprises]:

a bell crank plate having a first end portion coupled to the power transfer arm and having a second end portion for engaging a stop member;

a stop member secured to the inking/coating apparatus; and

25 a cleavis plate secured to the support arm and pivotally coupled to the bell crank plate.

9. (Amended) In a printing press of the type having side frame members forming a printing unit tower on which a plate cylinder and blanket cylinder are supported for rotation, the improvement comprising:

5 inking/coating apparatus for applying ink or coating material to a plate mounted on the plate cylinder or to a blanket mounted on the blanket cylinder when the inking/coating apparatus is in an operative position:

10 a carriage assembly including a support arm having a first end portion pivotally mounted to the printing unit tower and a second end portion pivotally mounted to the inking/coating apparatus, the carriage assembly being movable to an operative position in which the inking/coating apparatus is suspended laterally adjacent to the plate and blanket cylinders, and being movable to a retracted position in which the inking/coating apparatus is elevated with respect to the plate and blanket cylinders:

15 the inking/coating apparatus comprising:
an applicator heading having first and second side frame members pivotally coupled to the carriage assembly:

a doctor blade assembly mounted between the first and second side frame members, the doctor blade assembly including a reservoir for receiving ink or liquid coating material;

20 cradle means mounted on the first and second side frame members, respectively;

an applicator roller mounted for rotation on the cradle means and coupled to the doctor blade assembly for rolling contact with the ink or coating material in the reservoir, the applicator roller being engageable with a printing plate on the plate cylinder or with a blanket on the blanket cylinder in the operative position; and

motor means coupled to the applicator roller for rotating the applicator roller;

30 [The invention as set forth in Claim 7,] the cradle means including first and second sockets disposed on the first and second side frame members, respectively, and third and fourth sockets disposed on the first and second side frame members, respectively;

35 the applicator roller being mountable for rotation on the first and second sockets for applying ink or coating material to the plate when the carriage assembly is in the operative position; and

the applicator roller being mountable for rotation on the third and fourth sockets for applying ink or coating material to the blanket when the carriage assembly is in the operative position.

12. (Amended) A sheet fed, rotary offset printing press comprising, in combination:

at least one printing unit or dedicated coating unit having side frame members forming a tower;

5 at least one cylinder mounted for rotation on the tower for printing ink or coating material onto sheets passing through the printing unit or dedicated coating unit, the cylinder mounting either a plate or a blanket;

inking/coating apparatus including a doctor blade assembly having a reservoir for holding ink or coating liquid, a rotatable applicator roller and means
10 for applying ink or coating liquid from the reservoir onto a peripheral surface portion of the applicator roller; and

support apparatus mounted on the [printing unit] tower for pivotal movement, [said support apparatus being movably coupled to] the inking/coating apparatus pivotally mounted to the support apparatus, the support apparatus movable
15 relative the printing unit tower between [for supporting the inking/coating apparatus for movement to] an operative position in which the applicator roller is directly engaged [engageable] with a plate or a blanket on the cylinder, and [for movement to] a retracted position in which the inking/coating apparatus is supported at an elevated position above the cylinder.

13. (Amended) A rotary offset printing press comprising, in combination:
a plate cylinder having a printing plate mounted thereon;

a blanket cylinder having an ink receptive blanket disposed in ink transfer engagement with the plate cylinder for transferring ink from the image surface areas
5 of the printing plate to the receptive blanket;

an impression cylinder disposed adjacent the blanket cylinder thereby defining a nip between the impression cylinder and the blanket whereby the printing ink is transferred from the blanket to a substrate as the substrate is transferred through the nip;

10 inking/coating apparatus for applying ink or coating material to the plate or to the blanket;

continued)

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concluded)

15 support apparatus pivotally mounted on the printing press [for pivotal movement], said support apparatus and said inking/coating apparatus being pivotally connected [being movably coupled to the coating apparatus for supporting the inking/coating apparatus], said support apparatus being pivotal between [for movement to] an operative position in which the inking/coating apparatus is directly engaged [engageable] with the plate or the blanket, and [for movement to] a retracted position in which the inking/coating apparatus is supported at an elevated position above the press; and

20 a dryer mounted on the press for discharging heated air on the freshly printed substrate.

17. (Amended) In a printing press of the type having side frame members forming a tower on which a blanket cylinder is supported for rotation, the improvement comprising:

5 inking/coating apparatus for applying ink or coating material to a blanket mounted on the blanket cylinder when the inking/coating apparatus is in an operative position; and

10 a carriage assembly pivotaly mounted [movably coupled] to the tower and to the inking/coating apparatus, said carriage assembly movable between an operative position and a retracted position, said inking/coating apparatus pivoting relative the carriage assembly as the carriage assembly is moved between the operative position and retracted position to maintain a relatively constant orientation to the horizontal, the inking/coating apparatus in direct contact with the blanket cylinder in the operative position and elevated with respect to the blanket cylinder in the retracted position [for producing Ferris wheel movement of the inking/coating apparatus to

15 the operative position in which the inking/coating apparatus is suspended laterally adjacent to the blanket cylinder, and to a retracted position in which the inking/coating apparatus is elevated with respect to the blanket cylinder].

18. (Amended) In a printing press of the type having side frame members forming a tower on which a blanket cylinder is supported for rotation, the improvement comprising:

inking/coating apparatus for applying ink or coating material to a blanket mounted on the blanket cylinder when the inking/coating apparatus is in an operative position;

a carriage assembly pivotally mounted to the tower and to the inking/coating apparatus, said carriage assembly movable between an operative position and a retracted position, said inking/coating apparatus pivoting relative the carriage assembly as the carriage assembly is moved between the operative position and retracted position to maintain a relatively constant orientation to the horizontal;

[The invention as set forth in Claim 17, wherein] the tower including [includes] a plate cylinder and a plate mounted on the plate cylinder, the inking/coating apparatus including:

first cradle means for supporting an applicator roller for engagement against the plate when the inking/coating apparatus is in the operative position; and[,]

second cradle means for supporting an applicator roller for engagement against the blanket when the inking/coating apparatus is in the operative position.

19. (Amended) In a printing press of the type having side frame members forming a tower on which a blanket cylinder is supported for rotation, the improvement comprising:

inking/coating apparatus for applying ink or coating material to a blanket mounted on the blanket cylinder when the inking/coating apparatus is in an operative position;

a carriage assembly pivotally mounted to the tower and to the inking/coating apparatus, said carriage assembly movable between an operative position and a retracted position, said inking/coating apparatus pivoting relative the carriage

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- 10 assembly as the carriage assembly is moved between the operative position and retracted position to maintain a relatively constant orientation to the horizontal:

[The invention as set forth in Claim 17, comprising:] said carriage assembly including a support arm having a first end portion pivotally coupled to the tower and having a second end portion;

- 15 a common pivot shaft on which the support arm second end portion and the inking/coating apparatus are pivotally mounted; and[,]

male and female latch members coupled between the common pivot shaft and the tower, with one of the latch members being secured to the common pivot shaft and the other latch member being secured to the tower, the latch members being

20 mateable in interlocking engagement when the inking/coating apparatus is in the operative position.

21. (Amended) In a printing press of the type having side frame members forming a tower on which a blanket cylinder is supported for rotation, the improvement comprising:

- 5 inking/coating apparatus for applying ink or coating material to a blanket mounted on the blanket cylinder when the inking/coating apparatus is in an operative position:

a carriage assembly pivotally mounted to the tower and to the inking/coating apparatus, said carriage assembly movable between an operative position and a retracted position, said inking/coating apparatus pivoting relative the carriage

10 assembly as the carriage assembly is moved between the operative position and retracted position to maintain a relatively constant orientation to the horizontal:

a power actuator pivotally coupled to the support arm, the power actuator having a power transfer arm which is extendable and retractable;

[The invention as set forth in Claim 20, in which] the movement converting apparatus comprising [comprises]:

[illegible]

This amendment is in response to the Office Action mailed August 19, 1996.

Claims 1-23 were rejected under 35 U.S.C. § 112, ¶ 2, on various grounds. Claims 1, 12, 13, and 17 have been amended by this amendment and are believed to fully satisfy the requirements of § 112. The Examiner objected to the term "inking/coating" as recited throughout the claims as indefinite. The Applicants respectfully submit that the specification makes it clear that the apparatus is either an inking apparatus or a coating apparatus. Applicants believe the phrase "inking/coating" is an accepted phrase to convey this meaning. As such, Applicants believe it to be definite.

Claim 12 was rejected under 35 U.S.C. § 102 as being anticipated by U.S. Patent No. 4,841,903 to Bird. Claims 1, 4, 5, 11-15, 17 and 20 were rejected under 35 U.S.C. § 103 as unpatentable over Bird in view of U.S. Patent No. 4,889,051 to Sarda. Claim 10 was rejected under 35 U.S.C. § 103 as being

Applicants gratefully acknowledge the notification that Claims 6, 9, 18, 19 and 21 contain allowable subject matter. These claims have been amended to be in independent form containing all limitations from claims from which they previously depended and are believed to be in condition for allowance.

Claims 1, 12, 13 and 17 have each been amended to recite the structure that the inking/coating apparatus is in direct contact with the printing plate on the printing cylinder or with the blanket on the blanket cylinder. In the Sarda patent, a second blanket cylinder 7c must be provided on the frame 1. In addition, a second plate cylinder 17 is actually mounted on the movable inking module 16. Sarda adds no ink or coating to the original plate cylinder 2 or blanket cylinder 3 therein. In the present invention, as claimed, the inking/coating apparatus is moved into direct contact with the plate cylinder or blanket cylinder in the tower in which the invention is utilized. Thus, the present claimed invention is believed not anticipated, but also not obvious in view of the references since Sarda does not suggest nor disclose the potential of a Ferris type movement inking/coating apparatus to apply ink or a coating directly to the plate cylinder in a tower to which the apparatus is mounted. Sarda does not suggest any additional inking or coating to

The Bird patent does not disclose a support apparatus or inking/coating apparatus which is pivotally mounted to a portion of a rotary offset printing process. Bird simply discloses a device for linear movement of applicator roll 33 on the coating carriage 15 which, as noted at column 6, lines 33-38, is merely capable of horizontal adjustment for movement between a retracted or passive position and extended or active position and vertically adjustable for movement between the levels of the plate cylinder and the blanket cylinder. Because of the severely restricted space between towers in a printing press, it would be impossible for the mechanism of Bird to be mounted in a manner to permit use between tower stages. In contrast, the present invention is designed specifically for this purpose and is capable of moving from an operational position in engagement with the plate cylinder or blanket cylinder to a retracted position above the plate cylinder and tower in an arcuate motion determined by the pivoting axis and still allow full access to the tower from both sides. Also, the coating carriage 15, because it moves linearly, remains at a fixed orientation relative to the horizontal. However, to achieve the design of the present invention, in pivoting the inking/coating apparatus from an operative position to a position above the tower, the apparatus itself must be pivotally supported for the Ferris type movement to maintain a relatively constant orientation to the horizontal. Since the Bird device provides no such structure, it does not render the present claimed invention obvious.

With the distinctions noted to the independent claims, Applicants respectfully submit all pending claims in the present invention are in condition for allowance, which action is respectfully requested.

As this amendment is being filed within the second month extension after expiration of the shortened three month period for response, a two month extension fee in the amount of \$195.00 is enclosed herewith. Any additional funds required for the proper filing of this amendment, including an additional extension fees required under Rule 136, should be withdrawn from Sidley & Austin Deposit Account 18-1260.

Respectfully submitted,
Attorneys for Applicant

By: 

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Registration No. 29,160

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SIDLEY & AUSTIN
January 21, 1997
4500 Renaissance Tower
1201 Elm Street
Dallas, Texas 75270-2197
(214) 939-4500

105150-9625160



**UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office**

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/435,798	05/04/95	RENDELMEN	R B6012

F3M1/0423

DENNIS T GRIGGS
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NORTH DALLAS BANK TOWER, SUITE 1202
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DALLAS TX 75230

EXAMINER

FISHER, J

ART UNIT

PAPER NUMBER


3307

DATE MAILED: 04/23/97

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

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Office Action Summary	Application No. 08/435,798	Applicant(s) Ronald M. Rendlemen et al	
	Examiner J. R. Fisher	Group Art Unit 3307	

☒ Responsive to communication(s) filed on January 23, 1997.

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire THREE month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-34 is/are pending in the application.

Of the above, claim(s) 24-34 is/are withdrawn from consideration.

☒ Claim(s) 6, 9, 18, 19, and 21 is/are allowed.

☒ Claim(s) 1-5, 7, 8, 10-17, 20, 22, 23 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☐ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

Art Unit 3307

- **Claims 24-34 stand withdrawn** from further consideration by the examiner, 37 C.F.R. § 1.142(b) as being drawn to a nonelected invention. Election was made **without** traverse in Paper No. 3.

- **Claims 3, 22 and 23 are rejected under 35 U.S.C. 112, first paragraph**, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is no adequate disclosure as to what roller structure and roller fabrication is meant by "an anilox roller having a resilient transfer surface." No examples are disclosed as to how and in what manner a resilient transfer surface is incorporated with a anilox roller.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

- **Claims 1, 4, 5, 11, 12, 13, 14, 15, 17, 20 are rejected under 35 U.S.C. 103(a)** as being unpatentable over Bird (4,841,903) in view of Sarda (4,889,051). Bird (4,841,903) discloses an inking or coating apparatus for applying ink or coating material directly to a plate mounted on a plate cylinder

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Serial No. 08/435798

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Art Unit 3307

or directly to a blanket mounted on the blanket cylinder and including a carriage assembly having a support arm that is movable to an operative position in which the inking or coating apparatus is suspended laterally adjacent to the plate and blanket cylinders and being movable to a retracted position in which the inking or coating apparatus is elevated with respect to the plate and blanket cylinders. Sarda (4,889,051) discloses a carriage assembly including a support arm having a first end portion pivotally mounted to a printing unit tower and a second end portion pivotally mounted to an inking apparatus, the carriage assembly being movable to an operative position in which the inking apparatus is suspended laterally adjacent to the plate and blanket cylinder and being movable to a retracted position in which the ink apparatus is elevated with respect to the plate and blanket cylinders. It would have been obvious to one having ordinary skill in the art at the time the invention was made to broadly utilize a carriage assembly apparatus such as exemplified by Sarda (4,889,051) for providing the interrupting and engagement movements for the carriage assembly in Bird (4,841,903). The motivation would have involved merely the desire to obtain the expected and desired motion and movement capability of the assembly as disclosed by Sarda (4,889,051). With respect to claim 4, the broadly recited counterweight does not structurally define over the counterweight function performed by the

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linkage arms for stabilizing the movement of the support arm in Sarda (4,889,051) as applied. With respect to claim 5, Sarda (4,889,051) discloses a power actuator 29. With respect to claims 14 and 15, Bird (4,841,903) discloses a dryer 25 mounted adjacent the impression cylinder for discharging heated air onto a freshly printed substrate and an extractor 28 coupled to the dryer for extracting hot air and moisture from an exposure zone. Claim 17, has been amended to recite: "...said carriage assembly movable between an operative position and a retracted position, said inking/coating apparatus pivoting relative the carriage assembly as the carriage assembly is moved between the operative position and retracted position to maintain a relatively constant orientation to the horizontal..." This language is purely functional in context and is not supported by any antecedent structure which structurally and functionally defines over the apparatus and carriage assembly as disclosed by Sarda, as applied. Further, Sarda discloses a functional relationship between the inking/coating apparatus and the carriage assembly whereby the apparatus pivots relative to the carriage assembly as the carriage assembly is moved between the operative position and retracted position to maintain a relatively constant orientation to the horizontal (compare Figs. 3, 4, and 5). Applicants' remarks and claim amendments have been carefully considered, but are not persuasive to overcome the reasons for rejection. It is Bird who teaches the

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combination of an inking or coating apparatus for applying ink or coating material directly to a plate mounted on a plate cylinder or directly to a blanket mounted on the blanket cylinder, including a carriage assembly having a support arm that is movable to an operative position in which the inking or coating apparatus is suspended laterally adjacent and in direct contact with either the plate and blanket cylinder and being movable to a retracted position in which the inking or coating apparatus is elevated with respect to the plate and blanket cylinders. Sarda (4,889,051) is applied merely to show how an equivalent support arm system can provide the movement desired by Bird, i.e., Sarda discloses a carriage assembly including a support arm having a first end portion pivotally mounted to a printing unit tower and a second end portion pivotally mounted to an inking apparatus, the carriage assembly being movable to an operative position in which the inking apparatus is suspended laterally adjacent to the plate and blanket cylinder and being movable to a retracted position in which the ink apparatus is elevated with respect to the plate and blanket cylinders. It would have been obvious to one having ordinary skill in the art at the time the invention was made to broadly utilize a carriage assembly apparatus such as exemplified by Sarda (4,889,051) for providing the interrupting and engagement movements for the carriage assembly in Bird (4,841,903) for the reasons as expressed above.

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Art Unit 3307

• **Claim 10 is rejected under 35 U.S.C. 103(a)** as being unpatentable over Bird (4,841,903) in view of Sarda (4,889,051), further in view of Koehler et al (4,934,305). It would have been obvious to one having ordinary skill in the art at the time the invention was made to broadly utilize any conventional latching mechanism for securing the carriage assembly in Bird, as applied; for example, such as the latching components 60, 61 as disclosed by Koehler et al (4,934,305). The motivation would have involved the desire to secure the carriage assembly for the reasons as taught by Koehler et al (4,934,305).

• **Claim 17 is rejected under 35 U.S.C. § 102(b)** as being anticipated by Sarda (4,889,051). As broadly claimed, Sarda (4,889,051) discloses an inking apparatus for applying ink to a blanket mounted on the blanket cylinder and a carriage assembly pivotally mounted to the tower and to the inking/coating apparatus. Claim 17, has been amended to recite: "...said carriage assembly movable between an operative position and a retracted position, said inking/coating apparatus pivoting relative the carriage assembly as the carriage assembly is moved between the operative position and retracted position to maintain a relatively constant orientation to the horizontal..." This language is purely functional in context and is not supported by any antecedent structure which structurally and functionally defines over the apparatus and

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Art Unit 3307

carriage assembly as disclosed by Sarda, as applied. Further, Sarda discloses a functional relationship between the inking/coating apparatus and the carriage assembly whereby the apparatus pivots relative to the carriage assembly as the carriage assembly is moved between the operative position and retracted position to maintain a relatively constant orientation to the horizontal (compare Figs. 3, 4, and 5).

• **Claims 2, 7 and 8 are rejected under 35 U.S.C. 103(a)** as being unpatentable over Bird (4,841,903) in view of Sarda (4,889,051) as applied to claim 1, further in view of DiRico (4,685,414). Bird (4,841,903) further discloses an applicator roller for contacting either the plate cylinder or the blanket cylinder. DiRico (4,685,414) is applied to show conventional applicator structure comprising a doctor blade and applicator roller in fluid communication with a fluid reservoir. It would have been obvious to one having ordinary skill in the art at the time the invention was made to broadly utilize conventional doctor blade and applicator roller structure in Bird (4,841,903), for example such as exemplified by DiRico (4,685,414), if in fact such is not inherent in Bird (4,841,903). The motivation would have involved merely the selection of equivalent fluid application components so as to obtain the expected and desired function therein.

• **Claim 3 is rejected under 35 U.S.C. 103(a)** as being unpatentable

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Art Unit 3307

over Bird (4,841,903) in view of Sarda (4,889,051) and DiRico (4,685,414), as applied to claim 2, further in view of each of Rhorer (3,360,393) and Goettsch (2,531,036). It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a conventional resilient surface on the anilox applicator roller in Bird (4,841,903), as applied, especially in view of each of Rhorer (3,360,393) and Goettsch (2,531,036) who each discloses that it is old to utilize a resilient transfer surface on an anilox type applicator roller. The motivation would have been so as to obtain the desired fluid function from the use of a resilient transfer surface.

• **Claims 16 is rejected under 35 U.S.C. 103(a)** as being unpatentable over Bird (4,841,903) in view of Sarda (4,889,051), as applied to claim 13, further in view of Rodi (5,115,741). It would have been obvious to one having ordinary skill in the art at the time the invention was made to place the dryer devices in Bird (4,841,903) at any desired location including at a location disposed adjacent to the transfer cylinder for discharging heated air onto a freshly printed or coated substrate; for example, if such were desired in addition to the locations defined therein. This is especially so in view of Rodi (5,115,741) who teaches that it is conventional to locate a dryer adjacent to a transfer cylinder. The motivation would have involved merely the selection of conventional dryer locations so as to obtain the expected function therefrom.

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Art Unit 3307

● **Claim 22 is rejected under 35 U.S.C. 103(a)** as being unpatentable over Bird (4,841,903) in view of Sarda (4,889,051), as applied to claim 1, further in view of each of Rhorer (3,360,393) and Goettsch (2,531,036). It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a conventional resilient surface on the applicator roller in Bird (4,841,903) especially in view of each of Rhorer (3,360,393) and Goettsch (2,531,036) who each discloses that it is old to utilize a resilient transfer surface on an applicator roller. The motivation would have been so as to obtain the expected fluid function from the use of a resilient transfer surface.

● **Claim 23 is rejected under 35 U.S.C. 103(a)** as being unpatentable over Bird (4,841,903) in view of Sarda (4,889,051), as applied to claim 1, further in view of each of Rhorer (3,360,393) and Goettsch (2,531,036). It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a conventional resilient surface on the anilox applicator roller in Bird (4,841,903), especially in view of each of Rhorer (3,360,393) and Goettsch (2,531,036) who each discloses that it is old to utilize a resilient transfer surface on an anilox type applicator roller. The motivation would have been so as to obtain the desired fluid function from the use of a resilient transfer surface.

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- **Claims 6, 9, 18, 19, and 21 are allowed.**

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).

A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 C.F.R. § 1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.


J. REED FISHER
PRIMARY EXAMINER
ART UNIT 3307

703 308-0525
April 16, 1997

08/435798-96/EST/60

Notice of References Cited		Application No. 08/435,798		Applicant(s) Ronald M. Rendlemen et al	
		Examiner J. R. Fisher		Group Art Unit 3307	Page 1 of 1

U.S. PATENT DOCUMENTS						
	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	
A	4,889,051	12/26/89	Sarda	101	77	
B	2,531,036	11/21/50	Goettisch	101	350x	
C	3,360,393	12/26/67	Rhorer	101	363X	
D	5,115,741	5/26/92	Rodi	101	416.1	
E						
F						
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FOREIGN PATENT DOCUMENTS						
	DOCUMENT NO.	DATE	COUNTRY	NAME	CLASS	SUBCLASS
N						
O						
P						
Q						
R						
S						
T						

NON-PATENT DOCUMENTS	
	DOCUMENT (Including Author, Title, Source, and Pertinent Pages)
U	
V	
W	
X	

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11178/09001



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In application of:

Ronald M. Rendlemen, et al.

Serial No.: 08/435,798

Art Unit: 3307

Filed: May 4, 1995

Examiner: J.R. Fisher

For: RETRACTABLE INKING/COATING APPARATUS HAVING FERRIS
MOVEMENT BETWEEN PRINTING UNITS

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#10/IDS

Assistant Commissioner

For Patents

Washington, D.C. 20231

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231 on June 13, 1997. Date of Deposit

William R. Gustavson, Registration No. 29,160
Name of Applicant, Assignee, or
Registered Representative

Signature
Date of Signature June 13, 1997

Dear Sir:

**PETITION REQUESTING CONSIDERATION OF
INFORMATION DISCLOSURE STATEMENT AND
INFORMATION DISCLOSURE STATEMENT**

In accordance with 37 C.F.R. §§ 1.97-1.98, attached hereto is a Form PTO-1449 listing information for consideration by the Office in connection with its examination of the above-captioned patent application. Copies of each document listed are enclosed herein.

These documents were cited in a European Search Report on the corresponding European patent application. The search was dated March 20, 1997 and mailed from the European Patent Office on April 15, 1997. Applicants' U.S. counsel received the references on April 29, 1997. Therefore, pursuant to 37 C.F.R. § 1.97(e)(1), the undersigned hereby certifies that each item of information contained in the Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this statement.

07/11/1997 JJALLAH 00000090 08435798
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The German language document from Papier + Kunststoff Verarbeiter appears to show a press with a movable coating cylinder which can move in and out of engagement with the impression cylinder.

Applicants hereby petition for the entry of this Information Disclosure Statement in this application and the consideration of the information cited therein by the Examiner under the provisions of 37 C.F.R. § 1.97(d).

Also enclosed is a copy of the European Search Report which sets forth the manner in which the European searching authority characterized cited documents.

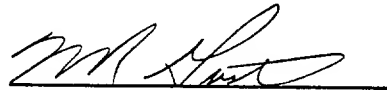
Applicants submit that no representation is made, and no representation is intended, that more relevant material does not exist, or that the order of presentation of these materials in any way reflects their relative pertinence. The listing on the attached Form PTO-1449 is not intended to constitute an admission of any kind. Specifically, this presentation is not an admission that any of the items listed are properly citable against the above-identified application as prior art.

Enclosed herewith is the necessary petition fee of \$130.00 under 37 C.F.R. § 1.17(i). Any additional fees necessary for the proper filing of this petition should be withdrawn from Sidley and Austin Deposit Account 18-1260.

Applicants believe that the claimed invention is patentable over these documents.

Respectfully submitted,

By:



William R. Gustavson
Registration No. 29,160

WRG/jk
June 13, 1997
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Zweigstelle
in Den Haag
Recherchen-
abteilung

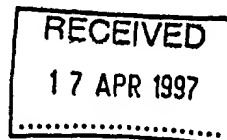
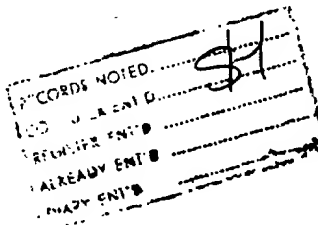
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Office européen
des brevets

Département a
La Haye
Division de la
recherche

Gura, Henry Alan
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GRANDE BRETAGNE



Datum/Date

15.04.97

Zeichen/Ref./Ref. HAG/FP5233994	Anmeldung Nr./Application No./Demande n° //Patent Nr./Patent No./Brevet n° 96303136.4
Anmelder/Applicant/Demandeur/Patentinhaber/Proprietor/Titulaire DeMoore, Howard W.	

COMMUNICATION

The European Patent Office herewith transmits

- ☒ the European search report
- ☐ the declaration under Rule 45 EPC
- ☐ the partial European search report under Rule 45 EPC
- ☐ the supplementary European search report concerning the international application under Article 157(2) EPC relating to the above-mentioned European patent application. Copies of the documents cited in the search report are enclosed.

The following specifications given by the applicant have been approved by the Search Division :

- ☒ Abstract ☒ Title ☒ Figure
- ☐ The abstract was modified by the Search Division and the definitive text is attached to this communication.
- ☐ The following figure will be published with the abstract, since the Search Division considers that it better characterises the invention than the one indicated by the applicant.

Figure:

- ☒ Additional copy(copies) of the documents cited in the European search report.

L. van Velzen - Péron



REFUND OF THE SEARCH FEE

If applicable under Article 10 Rules relating to fees, a separate communication from the Receiving Section on the refund of the search fee will be sent later.

EPO Form 1507 02.93				



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 96 30 3136

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X Y	US 4 841 903 A (BIRD) * abstract; claims; figure 1 * ---	1,15-17 4-6,8,9, 13	B41F31/30 B41F5/24 B41F23/08
X	US 5,107 790 A (SLIKER ET AL.) * abstract; claim 1; figures * * column 2, line 9 - line 22 * ---	1,18	
Y	US 5 335 596 A (DEMOORE ET AL.) * abstract; figures 1-4 * * column 7, line 32 - line 58 * ---	4,5,8,9	
Y	US 4 617 865 A (SWITALL) * abstract; figures 1-3 * * column 6, line 9 - line 42 * ---	6	
Y	US 4 825 804 A (DIRICO ET AL.) * abstract; figures 2,3 * * column 3, line 10 - line 21 * ---	13	
A	EP 0 647 524 A (DEMOORE) * abstract; figures 1,2,5 * * column 4, line 32 - line 40 * ---	15-22	TECHNICAL FIELDS SEARCHED (Int.Cl.6) B41F
A	PAPIER + KUNSTSTOFF VERARBEITER, vol. 26, no. 6, 1 June 1991, page 129 XP000232825 "LACKIER-AGGREGAT FUER SPEEDMASTER-MASCHINEN" -----	1	
1 The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 20 March 1997	Examiner Helpiö, T
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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EPO FORM 1501 01/92 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.

EP 96 30 3136

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

20-03-1997

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 4841903 A	27-06-89	US 4939992 A	10-07-90
US 5107790 A	28-04-92	NONE	
US 5335596 A	09-08-94	US 5176077 A	05-01-93
		US 5207159 A	04-05-93
		AT 148038 T	15-02-97
		AU 646197 B	10-02-94
		CA 2094694 A	07-11-93
		CN 1079689 A,B	22-12-93
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		CA 2129321 A	07-04-95
		CN 1109004 A	27-09-95
		CZ 9402450 A	14-06-95
		FI 944278 A	07-04-95
		JP 7164617 A	27-06-95
		NO 943706 A	07-04-95

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

7.05.97 15.05.97

**INFORMATION DISCLOSURE
CITATION FORM FOR
PATENT APPLICATION
(FORM PTO - 1449)**

Pocket No.: 11178/09001

Serial No.: 08/435,798

Applicant(s): Ronald M. Rendlemen, et al.

Filing Date: May 4, 1995

Group: 3307

U. S. PATENTS

Initials	Patent No	Issue Date	Name	Class	Subclass	Filing Date
<i>RE</i>	4,617,865	10/21/86	Switall	101	350	08/07/85
<i>RE</i>	5,335,596	08/09/94	DeMoore	101	350	04/26/93

FOREIGN PATENT DOCUMENTS

Initials	Document Number	Date	Country	Name	Translation? (Yes/No/n/a)
<i>RE</i>	647,524	4/12/95	EP	DeMoore	N/A

Initials

Other Documents (Title, Author, Date, Pages, Etc., if known)

Papier + Kunststoff Verarbeiter, Vol. 26, No. 6, June 1, 1991,

Page 129 XP000232825 "Lackier-Aggregat Fuer Speedmaster-Maschinen"

Examiner's Signature: *Risher*

Date Considered: 7/21/97

Initial if reference considered, whether or not citation is in conformance with MPEP 609. Mark through citation if not in conformance and not considered. Include copy of this form with next correspondence to the Applicant(s).

FOR SEVEN



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
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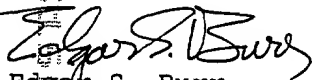
JUL 21 1997

GROUP 330

In re Application: :
RONALD M RENDLEMEN ET AL :
Serial Number: 08/435798 :
Filing Date: 05/04/95 :
For: RETRACTABLE :
INKING/COATING APPARATUS :
HAVING FERRIS MOVEMENT :
BETWEEN PRINTING UNITS :

DECISION ON PETITION FILED UNDER 37
CFR 1.97 FOR CONSIDERATION OF
INFORMATION DISCLOSURE STATEMENT
AFTER FINAL REJECTION

1. The information disclosure statement submitted on 06/17/97 was filed after the mailing date of the Final Rejection on 04/23/97. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the petition is granted and the information disclosure statement is being considered by the examiner.


Edgar S. Burr
Supervisory Patent Examiner
Group 3300

ESB

Attachment: PTO 1449

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THE END OF THE WORLD



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Ronald M. Rendlemen, et al.

Serial No.: 08/435,798

Art Unit: 3307

Filed: May 4, 1995

Examiner: J.R. Fisher

For: RETRACTABLE INKING/COATING APPARATUS MOVING FERRIS
MOVEMENT BETWEEN PRINTING UNITS

Assistant Commissioner
For Patents
Washington, D.C. 20231

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231 on September 29, 1997
Date of Deposit

William R. Gustavson, Registration No. 29,160
Name of Applicant, Assignee, or
Registered Representative

Signature
Date of Signature September 29, 1997

Dear Sir:

NOTICE OF APPEAL

Applicants hereby appeal from the Final Rejection mailed April 23, 1997. The claims appealed are Claims 1-5, 7-8, 10-17, 20, 22 and 23.

Enclosed is a filing fee of \$150.00. Also enclosed is a two-month extension fee in the amount of \$195.00. Any additional fees necessary for the proper filing of this Notice of Appeal, including any additional fees under Rule 136, should be withdrawn from Sidley & Austin Deposit Account 18-1260.

10/03/1997 AMYES 00000026 08435798
01 FC:219 150.00 DP

Respectfully submitted,

William R. Gustavson
Registration No. 29,160

WRG/jk
June 13, 1997
SIDLEY & AUSTIN
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10/03/1997 AMYES 00000027 08435798
01 FC:216 195.00 DP

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OCT 7 1997
GROUP 3307

REQUEST FOR EXTENSION OF TIME IS GRANTED BY
AUTHORITY OF THE PRIMARY EXAMINER FOR
S. Spruell

S. Spruell
Clerk, Group 330
PARTY NOTIFIED ☒
R.O.P. ☒

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Spruell
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Appeal
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

GAU 3307

Spruell
12-1-97

13/ Rev. +
P/atty
(by assignee)

In re application of:

RONALD M. RENDLEMEN, et al.

Serial No.: 08/435,798

Filed: May 4, 1995

Group: 3307

For: RETRACTABLE INKING/COATING APPARATUS HAVING
FERRIS MOVEMENT BETWEEN PRINTING UNITS

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231 on November 17, 1997
Date of Deposit

Assistant Commissioner

For Patents

Washington, D.C. 20231

William R. Gustavson, Registration No. 29,160
Name of Applicant, Assignee, or
Registered Representative

William R. Gustavson
Signature
Date of Signature November 17, 1997

Dear Sir:

**REVOCATION OF PRIOR POWERS OF ATTORNEY,
AND NEW POWER OF ATTORNEY
WITH CERTIFICATE UNDER 37 C.F.R. § 3.73(b)**

Howard W. DeMoore, an individual with a mailing address of 10954 Shady Trail, Dallas, Texas 75220, hereby certifies that he is the assignee of the entire right, title and interest in and to the above-identified patent application by virtue of an assignment from the inventors of the above identified patent application to the current assignee as shown below:

1. Said patent application was filed on behalf of the above named inventor(s);
2. An Assignment, recorded April 26, 1996 by the above named inventors; of said patent application to Howard W. DeMoore, an individual, was recorded at REEL 7909, FRAMES 438 to 441;

The undersigned has reviewed all of the documents in the chain of title of said patent application and, to the best of undersigned's knowledge and belief, title is in said Howard W. DeMoore.

Howard W. DeMoore, being the owner of the entire right, title and interest for the above-identified patent application, hereby revokes all powers of attorney for the above-identified patent application heretofore given, and hereby appoints:

V. Bryan Medlock, Jr.	Reg. No. 22,047
Garland P. Andrews	Reg. No. 24,153
Charles S. Cotropia	Reg. No. 27,189
James P. Bradley	Reg. No. 27,537
Dale B. Nixon	Reg. No. 28,454
William R. Gustavson	Reg. No. 29,160
David L. Hitchcock	Reg. No. 30,067
Roger N. Chauza	Reg. No. 29,753
Eugenia S. Hansen	Reg. No. 31,966
James W. Williams	Reg. No. 20,047
Elisabeth A. Evert	Reg. No. 34,156

all of the firm of Sidley & Austin, its attorneys with full power of substitution and revocation, to transact all business in the United States Patent and Trademark Office connected therewith.

Effective immediately, please address all correspondence relating to the above-identified patent to:

Sidley & Austin
4500 Renaissance Tower
1201 Elm Street
Dallas, Texas 75270-2197

Please direct all telephone calls to:

William R. Gustavson
Direct Telephone (214) 981-3310
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Fax Number (214) 981-3400

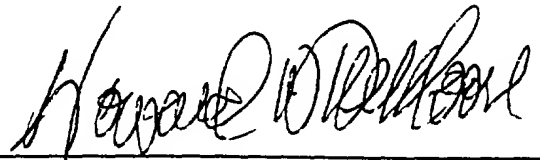
11178/09001

3

I hereby declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true; and further, that these statements are made with the knowledge that willful false statements, and the like so made, are punishable by fine or imprisonment, or both, under Section 1001, Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

11/6/97
Date

By:



Howard W. DeMoore

001178-09001-DECL

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UNITED STATES DEPARTMENT OF COMMERCE
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Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO.
08/435,798	05/04/95	RENDELMEN	

Dennis T. Griggs, Attorney at Law
North Dallas Bank Tower
Suite 1202
12900 Preston Road, LB-38
Dallas, TX 75230

EXAMINER	
Fisher	
ART UNIT	PAPER NUMBER
3307	14
DATE MAILED: 12/01/97	

This is in response to the Power of Attorney filed 11-19-97

- ☐ 1. The Power of Attorney to you in this application has been revoked by the applicant. Future correspondence will be mailed to the new address of record. 37 CFR 1.33.
- ☒ 2. The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record. (37 CFR 1.33).
- ☐ 3. The withdrawal as attorney in this application has been accepted. Future correspondence will be mailed to the new address of record. 37 CFR 1.33.

This is a communication from the
Patent and Trademark Office

- ☒ 4. The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the below-noted address as provided by 37 CFR 1.33.
- ☐ 5. The Power of Attorney in this application is not accepted for the reason(s) checked below:
- ☐ a. The Power of Attorney is from an assignee and the Certificate required by 37 CFR 3.73 (b) has not been received.
 - ☐ b. The person signing for the assignee has omitted their empowerment to sign on behalf of the assignee.
 - ☐ c. The inventor(s) is without authority to appoint attorneys since the assignee has intervened as provided by 37 CFR 3.71.
 - ☐ d. The signature of _____, a co-inventor in this application, has been omitted. The Power of Attorney will be entered upon receipt of confirmation signed by said co-inventor.
 - ☐ e. The person(s) appointed in the Power of Attorney is not registered to practice before the U.S. Patent & Trademark Office.
 - ☐ f. The revocation is not signed by the applicant, the assignee of the entire interest, or one particular principal attorney having the authority to revoke.

Sidley & Austin
4500 Renaissance Tower
1201 Elm Street
Dallas, TX 75270-2197

L. Spowell, Art Unit Clerk
This is a communication from the
Patent and Trademark Office

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Serial No. 08/435,798

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re U. S. application of:

Ronald M. Rendlemen, et al.

U.S. Serial No.: 08/435,798

Filed: May 4, 1995

Group Art Unit: 3307

Examiner: J.R. Fisher

For: RETRACTABLE INKING/COATING APPARATUS
HAVING FERRIS MOVEMENT BETWEEN PRINTING
UNITS

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JAN 27 1998

BOARD OF PATENT APPEALS
AND INTERFERENCES

Assistant Commissioner for

Patents

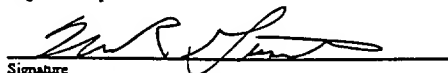
Washington, D.C. 20231

Attention: Board of Patent Appeals and Interferences

I hereby certify that this correspondence is being deposited with the
United States Postal Service as first class mail in an envelope addressed
to: Assistant Commissioner for Patents, Washington, D.C. 20231, Attn:
Board of Patent Appeals and Interferences
on January 23, 1998.

Date of Deposit

William R. Gustavson, Registration No. 29,160
Name of Applicant, Assignee, or
Registered Representative


Signature

Date of Signature January 23, 1998

Dear Sirs:

APPEAL BRIEF

This brief is in furtherance of the Notice of Appeal mailed September 23, 1997.

Enclosed herewith is a check in the amount of \$155.00 for the fee for filing this brief
and a two month extension fee in the amount of \$200.00. Any further fees necessary
for the proper filing of this appeal brief, including any additional extension fees, should
be withdrawn from Sidley & Austin Deposit Account 18-1260.

This brief is transmitted in triplicate as required under Rule 1.192(a).

I. Real Parties In Interest

The real parties in interest to this application are Howard W. DeMoore, assignee of all rights in the present application, and Printing Research, Inc.

II. Related Appeals and Interferences

There are no related appeals and interferences.

III. Status of Claims

Claims 1-34 are pending in the application. Claims 24-34 have been withdrawn from consideration. Claims 6, 9, 18, 19 and 21 have been allowed. Claims 1-5, 7, 8, 10-17, 20, 22 and 23 have been rejected and are appealed.

IV. Status of Amendments

No amendment was filed after mailing of the final rejection on April 23, 1997.

V. Summary of Invention

The present invention is a new and improved in-line inking/coating apparatus 10 which can be used to apply inks or protective and/or decorative coatings to sheets or webs printed in a sheet fed or web fed, offset rotary or flexographic printing press 12. Such presses often have multiple printing towers (T1-T4) or units such as units 22-28 shown in Figure 1 for printing multiple colors and the like. Each printing unit commonly includes a plate cylinder 32 and a blanket cylinder 34, as well as impression cylinder 36. The separation between towers is quite limited.

The inking/coating apparatus 10 provides added flexibility to one or more of the towers by mounting a carriage assembly 58 (Figure 3) on a tower. Carriage assembly 58 supports an applicator head 60. The applicator head can have a single cradle or a

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dual cradle to define a dual cradle inking/coating apparatus 10 or a single cradle inking/coating apparatus 110.

The carriage assembly 58 supports the applicator head 60 in a cantilevered, pivotal arrangement which allows the apparatus to be installed and used between any two adjacent printing units, as well as being installed on the first and last printing units of the press. This is possible by use of a pair of cantilevered support arms 88 and 90 (Figure 3) which are mounted at one end to pivot blocks 92 and 94 on the printing tower. The applicator head 60 is mounted at the other end of the arms for independent pivotal motion with respect to the pivot arms. The applicator head 60 is thus supported in a cantilevered Ferris support arrangement. The applicator head 60 and carriage assembly 58 are capable of rotating (see FIG. 1) through a Ferris arc from an operation position, as seen in Figures 4-6, to a retracted position above the tower to which it is attached, as seen in Figures 1 and 2, without touching or interfering with the operation of the adjacent tower. The operator is assured virtually unrestricted access in the interstation space between the adjacent towers when the applicator head is engaged in the operative position and completely unrestricted access when the applicator head is retracted to the elevated position above the tower.

Precision linkages insure that the applicator head 60 is positioned precisely relative the plate and blanket cylinders in the tower in the operating position to provide precise and consistent positioning.

VI. Issues

The issues presented for review are as follows:

1. Are claims 3, 22 and 23 proper rejected under 35 U.S.C. § 112, first paragraph.
2. Are claims 1, 4, 5, 11, 12, 13, 14, 15, 17 and 20 properly rejected under 35 U.S.C. § 103 over Bird, U.S. Patent No. 4,841,903 in view of Sarda, U.S. Patent No. 4,889,051.

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3. Is claim 10 properly rejected under 35 U.S.C. § 103 as unpatentable over Bird in view of Sarda and further in view of Koehler, et al., U.S. Patent No. 4,934,305.

4. Is claim 17 properly rejected under 35 U.S.C. § 102 as anticipated by Sarda.

5. Are claims 2, 7 and 8 properly rejected under 35 U.S.C. § 103 as unpatentable over Bird in view of Sarda and further in view of DiRico, U.S. Patent No. 4,685,414.

6. Is claim 3 properly rejected under 35 U.S.C. § 103 over Bird, Sarda, DiRico and further in view of each of Rhorer, U.S. Patent No. 3,360,393 and Goettsch, U.S. Patent No. 2,531,036.

7. Is claim 16 properly rejected under 35 U.S.C. § 103 over Bird, Sarda and Rodi, U.S. Patent No. 5,115,741.

8. Is claim 22 properly rejected under 35 U.S.C. § 103 as unpatentable over Bird, Sarda, Rhorer and Goettsch.

9. Is claim 23 properly rejected under 35 U.S.C. § 103 over Bird, Sarda, Rhorer and Goettsch.

VII. Grouping of Claims

Applicants believe each claim is separately patentable and states hereinafter the reasons therefore.

Of the rejected claims, claim 1, 12, 13, and 17 are independent. Each of these independent claims is separately patentable. Claim 1 recites use of an inking/coating

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apparatus which is capable of applying ink or coating material directly to a plate on a plate cylinder or to a blanket on a blanket cylinder when in an operative position and a carriage assembly with a support arm pivotally mounted to the printing unit tower at one end and pivotally mounted to the inking/coating apparatus at the other end which is capable of moving the inking/coating apparatus laterally adjacent to the plate and blanket cylinders in an operative position and elevating the inking/coating apparatus with respect to the blanket and plate cylinders in a retracted position.

Independent claim 12 differs from claim 1, in part, by requiring a printing unit with side frame members forming a tower and at least one cylinder mounted therein supporting either a plate or a blanket. Independent claim 13 differs from independent claims 1 and 12, in part, by requiring a plate cylinder, a blanket cylinder, an impression cylinder and a dryer. Independent claim 17 differs from independent claims 1, 12, 13, in part, by requiring the carriage assembly to be maintained in a relatively constant orientation to the horizontal in moving between an operative position and a retracted position.

Each of the claims dependent from the independent claims noted above also defined separate patentable inventions. Claims 2-5, 7, 8, 10, 11, 22 and 23 ultimately depend on independent claim 1. Claim 2 requires the use of a doctor blade assembly with a reservoir and an applicator roller coupled to the doctor blade within the inking/coating apparatus. Claim 3 further restricts claim 2 by requiring the applicator roller to be an anilox roller with a resilient transfer surface. Claim 4 further restricts claim 1 by requiring a counterweight coupled to the support arm. Claim 5 further restricts claim 1 by requiring a power actuator pivotally coupled to the support arm with a power transfer arm which is extendable and retractable and apparatus coupled to the power transfer arm for converting extension or retraction movement of the power transfer arm into pivotal movement of the inking/coating apparatus relative the support arm. Claim 7 further restricts claim 1 by requiring the inking/coating apparatus to have an applicator head, a doctor blade assembly, cradle means, an applicator roller and a motor means. Claim 8 further limits claim 7 by requiring the cradle means to have first

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and second sockets. Claim 10 further restricts claim 1 by requiring male and female latch coupling members on the carriage assembly and on the printing unit tower to releasably latch the carriage assembly in interlocking engagement with the printing unit tower in the operative position. Claim 11 further restricts claim 1 in requiring the support arm to include an elongated shank portion and a hub portion which extends transversely with respect to the shank portion.

Claims 14-16 depend from claim 13. Claim 14 further restricts claim 13 by requiring the dryer to be mounted adjacent the impression cylinder. Claim 15 further restricts claim 13 in requiring an extractor to be coupled to the dryer. Claim 16 further restricts claim 13 to require a transfer cylinder and an interstation dryer disposed adjacent the transfer cylinder.

Claim 20 further restricts claim 17 to using a power actuator pivotally coupled to the support arm and an apparatus coupled to the power transfer arm to convert extension or retraction movement into pivotal movement.

Claim 22 further restricts claim 1 to requiring the applicator roller to having a resilient transfer surface. Claim 23 further restricts claim 1 to have the applicator roller mounted for engagement to a plate in the plate cylinder position with the applicator roller comprising an anilox roller with a resilient transfer surface.

VIII. Arguments

1. The rejection of claims 3, 22 and 23 under 35 U.S.C. § 112, first paragraph is improper.

The Examiner asserted there is no adequate disclosure as to what roller structure and roller fabrication is meant by "an anilox roller having a resilient transfer surface." The Examiner further states that no examples are disclosed as to how and in what manner a resilient transfer surface is incorporated with an anilox roller. Applicants respectfully submit that this phrase is readily understood by one of ordinary skill in the art. It therefore requires no specific examples to teach the person of

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ordinary skill in the art. This statement is further clearly supported by the specification in that this phrase was present in the claims as filed. The Examiner also cites art to reject claims in this application by stating this art discloses such a roller, supporting a conclusion one of ordinary skill would be aware of such a roller.

2. The rejection of claims 1, 4, 5, 11, 12, 13, 14, 15, 17 and 20 under 35 U.S.C. § 103 over Bird and Sarda is improper.

Claims 1, 12, 13 and 17 each recite the structure that the inking/coating apparatus is in direct contact with the printing plate on the plate cylinder or with the blanket on the blanket cylinder. In the Sarda patent, a second blanket cylinder 7c must be provided on the frame 1. In addition, a second plate cylinder 17 is actually mounted on the movable inking module 16. Sarda adds no ink or coating to the original plate cylinder 2 or blanket cylinder 3 therein. In the present invention, as claimed, the inking/coating apparatus is moved into direct contact with the plate cylinder or blanket cylinder in the tower on which the invention is utilized. Thus, the present claimed invention is believed not obvious in view of the combination of Sarda and Bird since Sarda does not suggest nor disclose the potential of a Ferris type movement inking/coating apparatus to apply ink or a coating directly to the plate cylinder or blanket cylinder in a tower to which the apparatus is mounted. Sarda does not suggest any additional inking or coating to be applied to the plate cylinder 2 therein. Further, Sarda does not suggest the application of ink or a coating to the blanket cylinder 3 mounted therein.

The Bird patent does not disclose a support apparatus or inking/coating apparatus which is pivotally mounted to a portion of a printing press. Bird simply discloses a device for linear movement of applicator roll 33 on the coating carriage 15 which, as noted in column 6, lines 33-38, is merely capable of horizontal adjustment for movement between a retracted or passive position and an extended or active position and vertically adjustable for movement between the levels of the plate cylinder and the blanket cylinder. Because of the severely restricted space between towers in a printing

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press, it would be impossible for the mechanism of Bird to be mounted in a manner to permit use between tower stages. In contrast, the present invention is designed specifically for this purpose and is capable of moving from an operational position in engagement with the plate cylinder or blanket cylinder to a retracted position above the plate cylinder and tower. The present invention moves in an arcuate motion determined by the pivoting axis and still allows full access to the tower from both sides. Also, the coating carriage 15 of Bird, because it moves linearly, remains at a fixed orientation relative to the horizontal. However, to achieve the design of the present invention, in pivoting the inking/coating apparatus from an operative position to a position above the tower, the apparatus itself must be pivotally supported for the Ferris-type movement to maintain a relatively constant orientation to the horizontal. Since the Bird device provides no such structure, a combination of Bird and Sarda does not render the present claimed invention obvious.

The Examiner claims that claim 4 broadly recites a counterweight which does not structurally define over the counterweight function performed by the linkage arms for stabilizing the movement of the support arm in Sarda. However, Applicants believe that the recitation of a counterweight in claim 4 is clearly a definition over Sarda. All objects have weight, but all objects do not serve as counterweights as specifically recited.

The Examiner states that the language of claim 17 requiring "said carriage assembly movable between an operative position and a retracted position, said inking/coating apparatus pivoting relative the carriage assembly as the carriage assembly is moved between the operative position and retracted position to maintain a relatively constant orientation to the horizontal" is purely functional in context and not supported by any antecedent structure. Applicants vigorously object to this conclusion. The language is clearly proper in defining the physical nature of the carriage assembly which has a physical nature such as to be movable between the operative position and the retracted position. It further definitively recites the structure of the inking/coating

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apparatus in pivoting in a manner to maintain a relatively constant orientation to the horizontal when moved between the operative and retracted position.

3. The rejection of claim 10 under 35 U.S.C. § 103 over Bird, Sarda and Koehler is improper.

Claim 10 depends from claim 1 and is therefore patentable over the art for the reasons set forth above. Additionally, Koehler is moved along a rail, and has no pivotal motion as required by claim 10.

4. The rejection of claim 17 under 35 U.S.C. § 102 as anticipated by Sarda is improper.

A proper rejection under 35 U.S.C. § 102 must find each and every claimed element in a single reference. This is not so in the present situation as Sarda does not disclose a structure which permits a carriage assembly to be moved between an operative position and a retracted position while maintaining relatively constant orientation to the horizontal and does not use an inking/coating apparatus to apply ink or coating material in direct contact with a blanket cylinder.

5. The rejection of claims 2, 7 and 8 under 35 U.S.C. § 103 over Bird, Sarda and DiRico is improper.

Claims 2, 7 and 8 depend from claim 1, and are therefore patentable for the reasons set forth above. DiRico does not suggest use of a carriage assembly with support arms pivotally coupled to the printing tower at one end and to an inking/coating apparatus at the other end.

6. The rejection of claim 3 under 35 U.S.C. § 103 over Bird, Sarda, DiRico, Rhorer and Goettsch is improper.

Claim 3 depends from claim 1 and is therefore patentable over these references for the reasons set forth above. Neither the Rhorer nor Goettsch patents disclose use

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of a carriage assembly with support arms having a first end portion pivotally coupled to the printing unit tower and a second end portion pivotally coupled to an inking/coating apparatus. Further, the Examiner's recitation of Rhorer and Goettsch disclosing a resilient transfer surface on a anilox type applicator roller is in conflict with the Examiner's assertion that that phrase is not adequate under § 112 in paragraph 1 above.

7. The rejection of claim 16 under 35 U.S.C. § 103 over Bird, Sarda and Rodi is improper.

Claim 16 depends from claim 13 and is patentable for the reasons set forth above. Rodi does not disclose a support apparatus mounted on the printing press for pivotal movement which allows the inking/coating apparatus to be pivoted to a retracted position at an elevated position above the press.

8. The rejection of claim 22 under 35 U.S.C. § 103 over Bird in view of Sarda, Rhorer and Goettsch is improper.

Claim 22 depends from claim 1 and is patentable for the reasons set forth above. Further, the Examiner's assertion that Rhorer and Goettsch disclose a resilient transfer surface on an applicator roller is inconsistent with the rejection in paragraph 1 above.

9. The rejection of claim 23 under 35 U.S.C. § 103 over Bird, Sarda, Rhorer and Goettsch is improper.

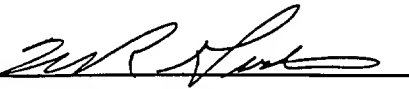
Claim 23 depends from claim 1 and is patentable for the reasons set forth above. Again, the Examiner's recitation that Rhorer and Goettsch disclose a resilient transfer surface on an anilox type applicator roller is inconsistent with the rejection in paragraph 1 above.

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IX. Conclusion

For the reasons set forth above, allowance of claims 1-5, 7, 8, 10-17, 20, 22 and 23 is respectfully requested.

Respectfully submitted,
Attorneys for Applicant

By: 

William R. Gustavson
Registration No. 29,160

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X. Claims on Appeal

1. In a printing press of the type having side frame members forming a printing unit tower on which a plate cylinder and blanket cylinder are supported for rotation, the improvement comprising:

inking/coating apparatus for applying ink or coating material directly to a plate mounted on the plate cylinder or directly to a blanket mounted on the blanket cylinder when the inking/coating apparatus is in an operative position; and

a carriage assembly including a support arm having a first end portion pivotally mounted to the printing unit tower and a second end portion pivotally mounted to the inking/coating apparatus, the carriage assembly being movable to an operative position in which the inking/coating apparatus is suspended laterally adjacent to the plate and blanket cylinders, and being movable to a retracted position in which the inking/coating apparatus is elevated with respect to the plate and blanket cylinders.

2. The invention as set forth in claim 1, wherein the inking/coating apparatus comprises:

a doctor blade assembly having a reservoir for receiving ink or liquid coating material;

an applicator roller coupled to the doctor blade assembly in fluid communication with the reservoir, the applicator roller being engagable with a printing plate on the plate cylinder or with a blanket on the blanket cylinder when the inking/coating apparatus is in the operative position.

3. The invention as set forth in claim 2, the applicator roller comprising: an anilox roller having a resilient transfer surface.

4. The invention as set forth in claim 1, including a counterweight coupled to the support arm.

5. The invention as set forth in claim 1, further comprising:
a power actuator pivotally coupled to the support arm, the power actuator having a power transfer arm which is extendable and retractable; and,
apparatus coupled to the power transfer arm for converting extension or retraction movement of the power transfer arm into pivotal movement of the inking/coating apparatus relative to the support arm.

7. The invention as set forth in claim 1, the inking/coating apparatus comprising:

an applicator head having first and second side frame members pivotally coupled to the carriage assembly;

a doctor blade assembly mounted between the first and second side frame members, the doctor blade assembly including a reservoir for receiving ink or liquid coating material;

cradle means mounted on the first and second side frame members, respectively;

an applicator roller mounted for rotation on the cradle means and coupled to the doctor blade assembly for rolling contact with ink or coating material in the reservoir, the applicator roller being engagable with a printing plate on the plate cylinder or with a blanket cylinder in the operative position; and,

motor means coupled to the applicator roller for rotating the applicator roller.

8. The invention as set forth in claim 7,

the cradle means including first and second sockets disposed on the first and second side frame members respectively; and,

the applicator roller being mounted for rotation on the first and second sockets.

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10. The invention as set forth in claim 1, comprising:

male and female latch coupling members mounted on the carriage assembly and on the printing unit tower, respectively, for releasably latching the carriage assembly in interlocking engagement with the printing unit tower in the operative position.

11. The invention as set forth in claim 1, wherein the support arm comprises an elongated shank portion and a hub portion which extends transversely with respect to the shank portion, the elongated shank portion being pivotally coupled to the inking/coating apparatus and the hub portion being pivotally coupled to the printing unit tower.

12. A sheet fed, rotary offset printing press comprising, in combination:
at least one printing unit or dedicated coating unit having side frame members forming a tower;

at least one cylinder mounted for rotation on the tower for printing ink or coating material onto sheets passing through the printing unit or dedicated coating unit, the cylinder mounting either a plate or a blanket;

inking/coating apparatus including a doctor blade assembly having a reservoir for holding ink or coating liquid, a rotatable applicator roller and means for applying ink or coating liquid from the reservoir onto a peripheral surface portion of the applicator roller; and

support apparatus mounted on the tower for pivotal movement, the inking/coating apparatus pivotally mounted to the support apparatus, the support apparatus movable relative the printing unit tower between an operative position in which the applicator roller is directly engaged with a plate or a blanket on the cylinder, and a retracted position in which the inking/coating apparatus is supported at an elevated position above the cylinder.

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13. A rotary offset printing press comprising, in combination:
a plate cylinder having a printing plate mounted thereon;
a blanket cylinder having an ink receptive blanket disposed in ink transfer
engagement with the plate cylinder for transferring ink from the image surface areas of
the printing plate to the receptive blanket;

an impression cylinder disposed adjacent the blanket cylinder thereby defining a
nip between the impression cylinder and the blanket whereby the printing ink is
transferred from the blanket to a substrate as the substrate is transferred through the
nip;

inking/coating apparatus for applying ink or coating material to the plate or to
the blanket;

support apparatus pivotally mounted on the printing press, said support
apparatus and said inking/coating apparatus being pivotally connected, said support
apparatus being pivotal between an operative position in which the inking/coating
apparatus is directly engaged with the plate or the blanket, and a retracted position in
which the inking/coating apparatus is supported at an elevated position above the press;
and

a dryer mounted on the press for discharging heated air on the freshly printed
substrate.

14. A rotary offset printing press as defined in claim 13, wherein:
the dryer is mounted adjacent the impression cylinder for discharging heated air
onto a freshly printed substrate while the substrate is in contact with the impression
cylinder.

15. A rotary offset printing press as defined in claim 13, comprising:
an extractor coupled to the dryer for extracting hot air, moisture and volatiles
from an exposure zone between the dryer and the freshly printed substrate.

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16. A rotary offset printing press as defined in claim 13, comprising:
a transfer cylinder disposed in an interstation position on the press and coupled
in sheet transfer relation with the impression cylinder; and,
an interstation dryer disposed adjacent the transfer cylinder for discharging
heated air onto a freshly printed or coated substrate after it has been transferred from
the impression cylinder and while it is in contact with the intermediate transfer cylinder.

17. In a printing press of the type having side frame members forming a
tower on which a blanket cylinder is supported for rotation, the improvement
comprising:

inking/coating apparatus for applying ink or coating material to a blanket
mounted on the blanket cylinder when the inking/coating apparatus is in an operative
position; and

a carriage assembly pivotally mounted to the tower and to the inking/coating
apparatus, said carriage assembly movable between an operative position and a
retracted position, said inking/coating apparatus pivoting relative the carriage assembly
as the carriage assembly is moved between the operative position and retracted position
to maintain a relatively constant orientation to the horizontal, the inking/coating
apparatus in direct contact with the blanket cylinder in the operative position and
elevated with respect to the blanket cylinder in the retracted position.

20. The invention as set forth in claim 17, further comprising:

a power actuator pivotally coupled to the support arm, the power actuator
having a power transfer arm which is extendable and retractable; and,

apparatus coupled to the power transfer arm for converting extension or
retraction movement of the power transfer arm into pivotal movement of the
inking/coating apparatus relative to the common pivot shaft.

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TOTAL 064750

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an applicator roller having a resilient transfer surface.

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POSTED: 9/2/2009



**UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office**

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
087435,798	05/04/95	RENDELMEN	R 11178/09001

SIDLEY & AUSTIN
4500 RENAISSANCE TOWER
1201 ELM STREET
DALLAS TX 75270-2197

25M2/0327

EXAMINER
FISHER, J

ART UNIT PAPER NUMBER
3307

DATE MAILED: 03/27/98

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

087435,798-051501

**Notification of Non-Compliance with
37 CFR 1.192(c)**

Application No.

08/435,798

Applicant(s)

Ronald M. Rendlemen et al

Examiner

J R Fisher

Group Art Unit


3307

The Appeal Brief filed on Jan 27, 1998 is defective for failure to comply with one or more provisions of 37 CFR 1.192(c). See MPEP § 1206.

Applicant is given a TIME LIMIT of ONE MONTH from the date of this letter or any time remaining in the period under 37 CFR 1.192(a) for filing a new complete brief. If a new brief that fully complies with 37 CFR 1.192(c) is not timely submitted, the appeal will be dismissed as of the expiration of the period provided by 37 CFR 1.192(a). No extension of this one month time limit may be obtained under either 37 CFR 1.136(a) or (b) but the original two-month period under 37 CFR 1.192(a) for filing the brief may be extended under 37 CFR 1.136(a) up to six months from the date of the Notice of Appeal. The new complete brief must be filed IN TRIPLICATE. See 37 CFR 1.192(a).

1. ☐ The brief does not contain the items required under 37 CFR 1.192(c), or the items are not under the proper heading or in the proper order.
2. ☐ The brief does not contain a statement of the status of all claims, pending or cancelled, or does not identify the appealed claims. 37 CFR 1.192(c)(3).
3. ☐ At least one amendment has been filed subsequent to the final rejection, and the brief does not contain a statement of the status of each such amendment. 37 CFR 1.192(c)(4).
- ☐ The brief does not contain a concise explanation of the claimed invention, referring to the specification by page and line number and to the drawing, if any, by reference characters. 37 CFR 1.192(c)(5).
- ☐ The brief does not contain a concise statement of the issues presented for review. 37 CFR 1.192(c)(6).
- ☐ A single ground of rejection has been applied to two or more claims in this application, and
 - a. ☐ the brief omits the statement required by 37 CFR 1.192(c)(7) that one or more claims do not stand or fall together, yet presents arguments in support thereof in the argument section of the brief.
 - b. ☐ the brief includes the statement required by 37 CFR 1.192(c)(7) that one or more claims do not stand or fall together, yet does not present arguments in support thereof in the argument section of the brief.
7. ☐ The brief does not present an argument under a separate heading for each issue on appeal. 37 CFR 1.192(c)(8).
8. ☐ The brief does not contain a correct copy of the appealed claims as an appendix thereto. 37 CFR 1.192(c)(9).
9. ☒ Other (including any explanation in support of the above items):

The appeal Brief refers to a Figure 6. A review of the drawings indicates that a Figure 6 has not been filed. However, a duplicate drawing of Figure 5 was filed (Five sheets of drawings were filed, including two sheets of drawings for Figure 5, but no sheet of drawing for Figure 6). Correction (without the need for filing a new complete brief) is required by properly submitting Figure 6 and instructing the deletion of the redundant sheet of drawing for Figure 5.


J. REED FISHER
PRIMARY EXAMINER
ART UNIT 3307

2800

17 Response
Bhan-
5-4-98

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF APPEALS AND INTERFERENCES

In re application of: Ronald M. Rendlemen, et al.

U. S. Serial No.: 08/435,798

Filed: May 4, 1995

Group Art Unit: 3307

Examiner: J. K. Risher

For: Retractable Inking/Coating Apparatus Having Ferris Movement Between
Printing Units

Assistant Commissioner for Patents
Washington, D. C. 20231

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MAY 1 1998

GROUP 2500

Dear Sirs:

Response to Notification of Non-Compliance with 37 CFR 1.192(c)

Responsive to the Action of March 27, 1998, enclosed is a drawing of Figure 6 for
inclusion in the Appeal Brief filed January 27, 1998.

Please delete the duplicate drawing of Figure 5 previously filed.

Remarks

It is believed that this response puts the Appeal Brief in compliance with 37 CFR
1.192(c).

Respectfully submitted,

LOCKE PURNELL RAIN HARRELL, P.C.

William D. Harris, Jr.
William D. Harris, Jr.
Registration No. 19,243

WDH/dbh
April 27, 1998
2200 Ross Avenue
Suite 2200
Dallas, Texas 75201-6776

00345798-051504
inter

FIG. 6

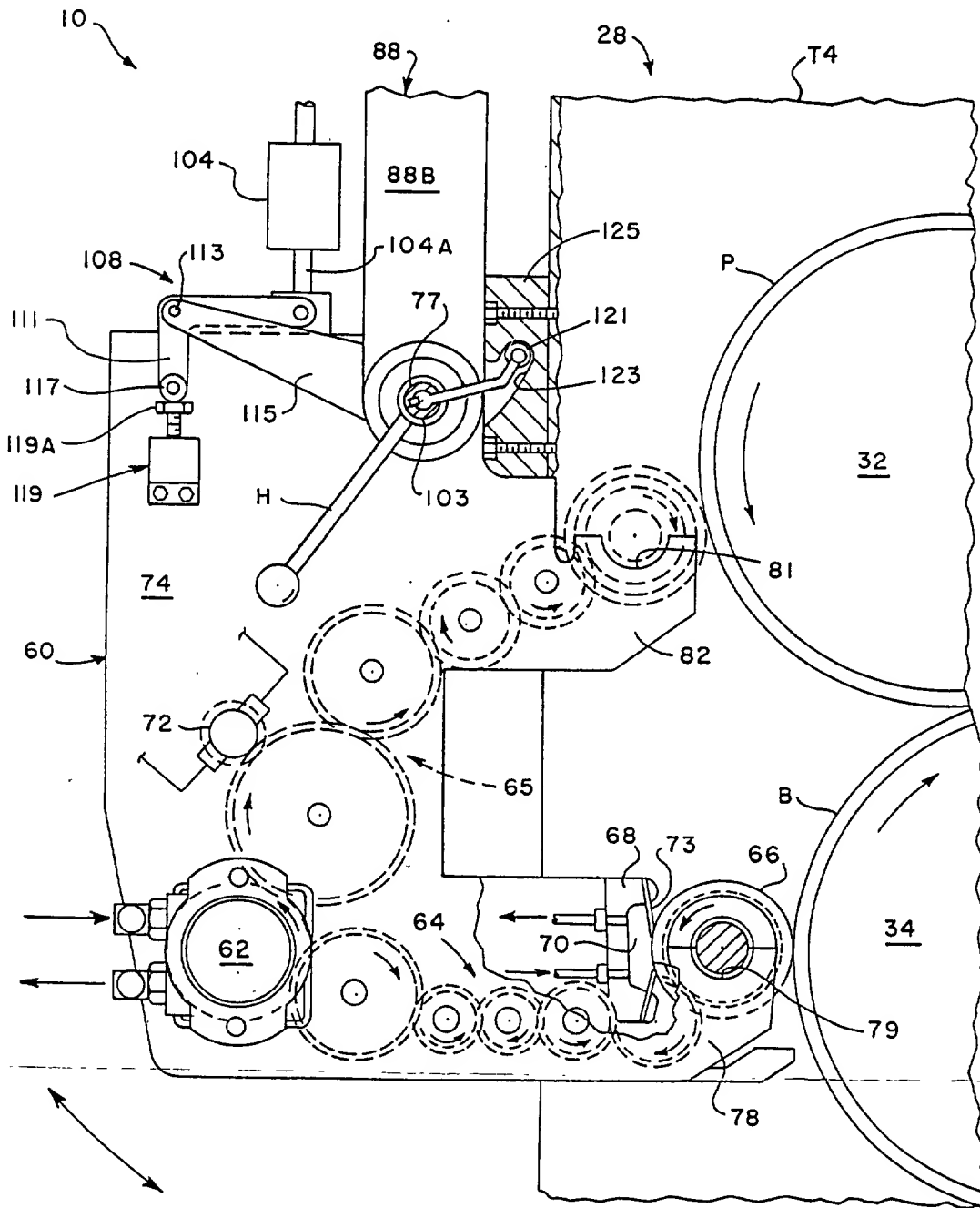


FIG. 6

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

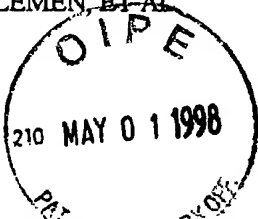
In re application of:

Serial No. 08/435,798
Filing Date: 04-May-95
Group Art Unit: 3307
Examiner: J.R. Fisher
For: RETRACTABLE INKING/COATING APPARATUS HAVING FERRIS
MOVEMENT BETWEEN PRINTING UNITS

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MAY 11 1998

GROUP 2100



#18
Change
of
Address
5-19-98
AR

Assistant Commissioner for Patents
Washington D.C. 20231

Dear Sir:

NOTICE OF CHANGE OF CORRESPONDENCE ADDRESS

Please change the correspondence address for the above-identified patent application.

From the old address of:

Sidley & Austin
1201 Elm Street, Suite 4500
Dallas, Texas 75270-2197
(214) 981-3300 phone
(214) 981-3400 fax

To the new address of:

Sidley & Austin
717 North Harwood, Suite 3400
Dallas, Texas 75201
(214) 981-3300 phone (Main)
(214) 981-3306 phone (Direct)
(214) 981-3400 Fax

Please direct all subsequent correspondence to the new address.

Respectfully submitted,

James P. Bradley
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Dallas, Texas 75201
(214) 981-3300

March 19, 1998 (9:42am)

0015796-001101



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285422
PATENT 11/88
AB

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Ronald M. Rendlemen, et al.

Serial No.: 08/435,798

Filed: May 4, 1995

Group Art Unit: 3307 28541

Examiner: J. K. Fisher

For: Retractable Inking/Coating Apparatus Having Ferris Movement Between Printing Units

Assistant Commissioner
for Patents
Washington, DC 20231

Sir:

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Assistant Commissioner for Patents, Washington, DC 20231

July 8, 1997
(Date of Deposit)
Barclay Harris

**Revocation of Previous Powers of Attorney
and Appointment of New Attorneys**

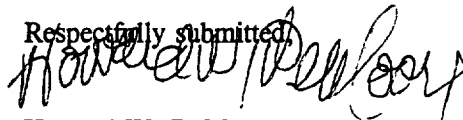
I, Howard W. DeMoore, as assignee of the entire interest in the above identified application, by virtue of an assignment recorded at Reel 7909, Frame 0438, hereby revoke all previous powers of attorney given in said application; and hereby appoint William D. Harris, Jr., Registration No. 19,243; and Michael W. Piper, Registration No. 39,800; of the firm of LOCKE PURNELL RAIN HARRELL, P.C., my attorneys to prosecute this application and to transact

all business in the Patent and Trademark Office connected therewith. I request that all correspondence be addressed to:

LOCKE PURNELL RAIN HARRELL, P.C.
Attention: Intellectual Property Section
2200 Ross Avenue
Suite 2200
Dallas, Texas 75201
Facsimile: 214/740-8800

Please direct telephone calls to William D. Harris, Jr., 214/704-8572.

Respectfully submitted,



Howard W. DeMoore

Date: 5/04/98

0011596-051501

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THE UNIVERSITY OF CHICAGO



**UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office**

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/435,798	05/04/95	RENDELMEN	11178709001

MM11/0901

SIDLEY & AUSTIN
717 NORTH HARWOOD
SUITE 3400
DALLAS TX 75201

EXAMINER FISHER, J

ART UNIT 2834	PAPER NUMBER
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DATE MAILED: 09/01/98

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

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UNITED STATES DEPARTMENT OF
COMMERCE
Patent and Trademark Office
ASSISTANT SECRETARY AND
COMMISSIONER OF PATENTS AND
TRADEMARKS
Washington, D.C. 20231

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Paper No. 19

Serial Number: 08/435798
Filing Date: 05/04/95
Appellant: Ronald M. Rendlemen, et al

William R. Gustavson
For Appellant

MAILED
SEP 01 1998
GROUP 2500

EXAMINER'S ANSWER

This is in response to appellant's brief on appeal filed January 27, 1998.

I. *Status of claims.*

The statement of the status of claims contained in the brief is correct.

08/435798-001-001

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This appeal involves claims 1-5, 7, 8, 10-17, 20, 22 and 23.

Claims 24-34 stand withdrawn from consideration.

Claims 6, 9, 18, 19 and 21 stand allowed.

II. *Status of Amendments After Final.*

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

III. *Summary of invention.*

The summary of invention contained in the brief is adequate.

IV. *Issues.*

The appellant's statement of the issues in the brief is substantially correct.

V. *Grouping of claims.*

Appellant's brief includes a statement that claims do not stand or fall together and provides reasons as set forth in 37 C.F.R. § 1.192(c)(5) and (c)(6).

VI. *Claims appealed.*

The copy of the appealed claims contained in the Appendix to the brief appears correct.

VII. *Prior Art of record.*

The following is a listing of the prior art of record relied upon in the rejection of claims under appeal.

08/435798-02501

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Rodi	5,115,741	05/26/1992
Rhorer	3,360,393	12/26/67
Goettsch	2,531,036	11/21/50
DiRico	4,685,414	08/11/87
Koehler et al	4,934,305	6/19/90
Sarda	4,889,051	12/26/89
Bird	4,841,903	6/27/89

VIII. *New prior art.*

No new prior art has been applied in this examiner's answer.

IX. *Grounds of rejection.*

- **Claims 3, 22 and 23 stand rejected under 35 U.S.C. 112, first paragraph,** as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

There is no adequate disclosure as to what roller structure and roller fabrication is meant by "an anilox roller having a resilient transfer surface." No examples are disclosed as to how and in what manner a resilient transfer surface is incorporated with an anilox roller.

The disclosure does not set forth the precise invention for which a patent is solicited in such manner as to distinguish it from other inventions and from what is old.

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The disclosure does not describe a specific embodiment of the anilox roller in such full, clear, concise and exact terms as to enable any person skilled in the art to make and use the same, and thus it is not in compliance with 35 U.S.C. 112.

Appellant contends that:

“...this phrase is readily understood by one of ordinary skill in the art, and therefore requires no specific examples to teach the person of ordinary skill in the art. This statement is further clearly supported by the specification in that this phrase was present in the claims as filed. The Examiner also cites art to reject claims in this application by stating this art discloses such a roller, supporting a conclusion one of ordinary skill would be aware of such a roller...”

It is noted that Appellant does not acknowledge that the prior art applied to claims 3, 22 and 23 meets the terms of the claimed “anilox roller having a resilient transfer surface”. Appellant contends on pages 9-10 of the appeal brief, in their arguments with respect to each of claims 3, 22 and 23, that “...the Examiner’s assertion that Rhorer and Goettsch disclose a resilient transfer surface on an applicator roller is in conflict with the Examiner’s assertion that that phrase is not adequate under 112 in paragraph 1 above...” Thus, Appellant argues on the one hand that the rejection of claims 3, 22 and 23 under 35 US 112, first paragraph, is inconsistent with the rejection of those claims under 35 USC 103; and on the other hand, argues that the rejection of the same claims under 35 USC 112, first paragraph is inconsistent with the rejection of those claims under 35 USC 103.

Accordingly, there is an absence of any evidence that supports a conclusion that

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one of ordinary skill would be aware of what structure is comprised of "an anilox roller having a resilient transfer surface" in the context of appellant's disclosure and claimed subject matter.

The disclosure must stand on its own insofar as providing an enabling support for that subject matter considered important to be included in the claimed subject matter.

Compliance with the requirements of the first paragraph of 35 USC 112 is not obtained merely because one of ordinary skill in the art might, after extensive experimentation, find out how to make and use the roller as claimed. The disclosure itself must furnish such information.

The interpretation of claimed structure and how such structure differs from prior art structure necessarily depends on the disclosure which enables such structure. The purpose for the precision requirements is to insure efficient and meaningful examination and to warn others skilled in the art against infringement and to enable them to benefit from the teaching of the patent. The time for insuring that an enabling disclosure is present is during the examination process.

The disclosure must be sufficient to place the artisan in possession of the claimed invention without undue experimentation. In re Hirsch, 295 F. 2d 251, 131 USPQ 198 (CCPA 1961). In re Ghiron, 169 USPQ 723; In re Scarborough, 500 F. 2d 560, 182 USPQ 298 (CCPA 1974); In re Gunn, 532, F. 2d 1123, 190 USPQ 402 (CCPA 1976).

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- **Claim 17 is rejected under 35 U.S.C. § 102(b)** as being anticipated by Sarda (4,889,051). As broadly claimed, Sarda (4,889,051) discloses an inking apparatus for applying ink to a blanket mounted on the blanket cylinder and a carriage assembly pivotally mounted to the tower and to the inking/coating apparatus.

Sarda teaches:

A printing press (Fig. 3) of the type having side frame members forming a tower on which a blanket cylinder (3,7C) is supported for rotation, the improvement comprising:

inking/coating apparatus (17, 23, etc.) for applying ink or coating material to a blanket (3,7C) mounted on the blanket cylinder when the inking/coating apparatus is in an operative position; and

a carriage assembly (30, 32) pivotally mounted (31A, etc.) to the tower and to the inking/coating apparatus (34), said carriage assembly movable between an operative position and a retracted position (compare Figs. 3, 4, 5); said inking/coating apparatus pivoting (at 34) relative to the carriage assembly as the carriage assembly is moved between the operative position and retracted position to maintain a relatively constant orientation to the horizontal. The orientation of the inking/coating apparatus as depicted in either Fig. 3 or Fig. 4, at the operative position, is maintained at a relatively constant orientation to the horizontal when the carriage assembly is moved to the retracted position; the same orientation is depicted in the retracted position shown in Fig. 5. The

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inking/coating apparatus is in direct contact with the blanket cylinder (blanket 7C in Fig. 3 and blanket 3 in Fig. 4) in the operative position (Fig. 3 or Fig. 4) and elevated (Fig. 5) with respect to the blanket cylinder in the retracted position.

Appellant contends that Sarda does not disclose the functional recitation:

"...said carriage assembly movable between an operative position and a retracted position, said inking/coating apparatus pivoting relative the carriage assembly as the carriage assembly is moved between the operative position and retracted position to maintain a relatively constant orientation to the horizontal..."

This language is purely functional in context and is not supported by any antecedent structure which structurally and functionally defines over the apparatus and carriage assembly as disclosed by Sarda, as applied. However, as noted above, Sarda does disclose a functional relationship between the inking/coating apparatus and the carriage assembly whereby the apparatus pivots relative to the carriage assembly as the carriage assembly is moved between the operative position and retracted position to maintain a relatively constant orientation to the horizontal (compare Figs. 3, 4, and 5). That is, the orientation of the inking/coating apparatus as depicted in the operative position in Fig. 3 or Fig. 4 is maintained at a relatively constant orientation to the horizontal when the carriage assembly is moved to the retracted position, i.e., the same orientation is depicted in the retracted position shown in Fig. 5. The inking/coating apparatus is in direct contact with the blanket cylinder (blanket 7C in Fig. 3 and blanket 3 in Fig. 4) in the operative position (Fig. 3 or Fig. 4) and elevated with respect to the

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blanket cylinder in the retracted position (Fig. 5).

- **Claims 1, 4, 5, 11, 12, 13, 14, 15, 17, 20 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Bird (4,841,903) in view of Sarda (4,889,051).**

Bird (4,841,903) discloses an inking or coating apparatus (14) for applying ink or coating material directly to a plate mounted on a plate cylinder or directly to a blanket mounted on the blanket cylinder and including a carriage assembly (15, 32) having a support arm that is movable to an operative position in which the inking or coating apparatus is suspended laterally adjacent to the plate and blanket cylinders and being movable to a retracted position in which the inking or coating apparatus is elevated with respect to the plate and blanket cylinders.

Bird teaches;

... The preferred coating application apparatus 14 includes a coating carriage 15 which is horizontally adjustably, in the machine direction, for movement between retracted or passive position and extended or active position, and also vertically adjustable for movement between the levels of the plate cylinder and the blanket cylinder as shown by means of broken lines. Moreover, the coating carriage 15 comprises a horizontally-adjustable coating applicator unit 32 which is movable in the machine direction between different extended coating positions to move the coating applicator roll 33 into coating association with printing and blanket cylinders which are not in vertical alignment, as disclosed in detail in my aforementioned copending application.

Thus, the coating carriage 15 and the applicator unit 32 are adjusted in the final coating station 13 to associate applicator roll 33 with either the spot relief plate 20b on printing roll 19b, for the printing

TOP SECRET

Art Unit 2854

of spot coatings, or with the blanket roll 23b, for the application of continuous coatings onto the dried, coated, printed copy sheets 18D, to form double-coated printed copies 18E. Copies 18E are transported by grippers past a final downstream radiant dryer 16 and air knives 16a, to evaporate the water vehicle from the second coating and form final copies 18F which are stacked to permit final curing of the oleoresinous printing ink.....

A description of Sarda (4,889,051) is set forth in the rejection of claim 17 above. Accordingly, Sarda (4,889,051) discloses a carriage assembly including a support arm (30) having a first end portion pivotally mounted (at 31A) to a printing unit tower and a second end portion pivotally mounted (at 33, etc.) to an inking apparatus; the carriage assembly being movable to an operative position (Figs. 3, 4) in which the inking apparatus is suspended laterally adjacent to the plate and blanket cylinder and being movable to a retracted position (Fig. 5) in which the ink apparatus is elevated with respect to the plate and blanket cylinders.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to broadly utilize a carriage assembly apparatus such as exemplified by Sarda (4,889,051) for providing the interrupting and engagement movements for the carriage assembly in Bird (4,841,903). The motivation would have involved merely the desire to obtain the expected and desired motion and movement capability of the assembly as disclosed by Sarda (4,889,051).

With respect to claim 4, the broadly recited counterweight does not structurally define over the counterweight function performed by the linkage arms for stabilizing the

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Art Unit 2854

movement of the support arm in Sarda (4,889,051) as applied. The linkage arms inherently provide a counterweight function as broadly recited.

With respect to claims 5 and 20, Sarda (4,889,051) discloses a power actuator 29 pivotally coupled to the support arm (30), the power actuator having a power transfer arm which is extendable and retractable; and,

apparatus coupled to the power transfer arm for converting extension or retraction movement of the power transfer arm into pivotal movement of the inking/coating apparatus relative to the common pivot shaft (compare movement of the apparatus in Figs. 3,4,5).

With respect to claims 13, 14 and 15, Bird (4,841,903) discloses a dryer 25 mounted adjacent the impression cylinder for discharging heated air onto a freshly printed substrate and an extractor 28 coupled to the dryer for extracting hot air and moisture from an exposure zone. For example, Bird teaches:

...The essential novelty of the present invention resides in the interposition of a drying station, such as 25 and 25a, between an ink printing station and a coating station, and preferably also between coating stations on machines having a plurality of coating stations, in order to substantially completely evaporate the volatile solvent or vehicle from the printed ink images, and evaporate any residual dampening water from the printed copy sheets, before the application of a spot or continuous coating thereover, and preferably to substantially completely solidify and dry the first coating such as by irradiating to polymerize or by evaporating the volatile solvent, vehicle and/or water from the coated, printed copy sheets before the in-line application of a second spot or continuous coating over the first-applied coating, as illustrated...(col. 6, lines 59---).

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...The air knives 26 and 27 and the extraction unit 28 are conventional elements normally used as final drying elements on printing and coating machines of different types. Knives 26 and 27 are elongate tubular elements provided with an elongate narrow slot formed by opposed, converging walls. Heated air is circulated through the tubular elements under pressure and is expelled from the elongate slot as a concentrated narrow band of high speed hot air which is directed against the ink-printed copy sheets 18A to evaporate the volatile solvent and water therefrom to release solvent and water vapor which is withdrawn by the extraction unit 28. Substantial drying is produced by the first air knife 26, and the second air knife 27 preferably is included, as illustrated, to insure complete drying prior to the entry of the copy sheets 18B to the next liquid application station...(col.4, lines 65--).

...The evaporated solvent and moisture is drawn into the solvent extraction unit 28 by an exhaust fan 31 and removed from the ambient atmosphere by conduit 29 for safety purposes...(col. 5).

With respect to claim 11, the support arm in Sarda comprises an elongated shank portion (portion of 30 which is pivotally connected at 33) and a hub portion (portion of 30 which is pivotally connect at 31A). The hub portion extends transversely (crosswise) with respect to the shank portion. The elongated shank portion is pivotally coupled (33) to the inking/coating apparatus and the hub portion is pivotally coupled (31A) to the printing unit tower.

With respect to claim 17, Sarda discloses a functional relationship between the inking/coating apparatus and the carriage assembly whereby the apparatus pivots relative to the carriage assembly as the carriage assembly is moved between the operative position and retracted position to maintain a relatively constant orientation to the horizontal (compare Figs. 3, 4, and 5). Sarda shows that the orientation of the inking/coating

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Art Unit 2854

apparatus as depicted in either Fig. 3 or Fig. 4 (at the operative position) is maintained at a relatively constant orientation to the horizontal when the carriage assembly is moved to the retracted position, as noted by the same orientation as depicted in Fig. 5.

Appellant contends (Appeal Brief, page 7) that claims 1, 2, 13 and 17 each recite the structure that the inking/coating apparatus is in direct contact with the printing plate on the plate cylinder or with the blanket on the blanket cylinder, and that Sarda does not show that arrangement.

However, it is the primary reference to Bird which is relied on for the disclosure of such structure. Bird teaches the combination of an inking or coating apparatus for applying ink or coating material directly to a plate mounted on a plate cylinder or directly to a blanket mounted on the blanket cylinder, including a carriage assembly having a support arm that is movable to an operative position in which the inking or coating apparatus is suspended laterally adjacent and in direct contact with either the plate and blanket cylinder, and being movable to a retracted position in which the inking or coating apparatus is elevated with respect to the plate and blanket cylinders. Sarda (4,889,051) is applied merely to show how an equivalent support arm system can provide the movement desired by Bird. Sarda discloses a carriage assembly including a support arm having a first end portion pivotally mounted to a printing unit tower and a second end portion pivotally mounted to an inking apparatus, the carriage assembly being movable to an operative position in which the inking apparatus is suspended laterally adjacent to

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Art Unit 2854

the plate and blanket cylinder and being movable to a retracted position in which the ink apparatus is elevated with respect to the plate and blanket cylinders. It would have been obvious to one having ordinary skill in the art at the time the invention was made to broadly utilize a carriage assembly apparatus such as exemplified by Sarda (4,889,051) for providing the interrupting and engagement movements for the carriage assembly in Bird (4,841,903) for the reasons as expressed above.

Appellant further contends (Appeal Brief, page 7) that the claimed invention is believed not obvious since Sarda does not suggest nor disclose the potential of a "Ferris type" movement inking/coating apparatus. It is noted that a "Ferris type" movement is not recited in these claims.

Appellant states (Appeal Brief, page 7) that the Bird patent does not disclose a support apparatus or inking/coating apparatus which is pivotally mounted to a portion of a printing press. However, it is the patent to Sarda which has been applied to show this feature.

- **Claim 10 stands rejected under 35 U.S.C. 103(a)** as being unpatentable over Bird (4,841,903) in view of Sarda (4,889,051), further in view of Koehler et al (4,934,305). It would have been obvious to one having ordinary skill in the art at the time the invention was made to broadly utilize any conventional latching mechanism for securing the carriage assembly in Bird, as applied; for example, such as the latching components 60, 61 as disclosed by Koehler et al (4,934,305). The motivation would have

Art Unit 2854

involved the desire to secure the carriage assembly for the reasons as taught by Koehler et al (4,934,305).

Appellant contends that the structure in Koehler is moved along a rail and has no pivotal motion as required by claim 10. However, Koehler is relied on for the teaching of a latching mechanism, as applied.

• **Claims 2, 7 and 8 stand rejected under 35 U.S.C. 103(a)** as being unpatentable over Bird (4,841,903) in view of Sarda (4,889,051) as applied to claim 1, further in view of DiRico (4,685,414). Bird (4,841,903) further discloses an applicator roller for contacting either the plate cylinder or the blanket cylinder. DiRico (4,685,414) is applied to show conventional applicator structure comprising a doctor blade and applicator roller in fluid communication with a fluid reservoir. It would have been obvious to one having ordinary skill in the art at the time the invention was made to broadly utilize conventional doctor blade and applicator roller structure in Bird (4,841,903), for example such as exemplified by DiRico (4,685,414), if such is not inherent in Bird (4,841,903). The motivation would have involved merely the selection of equivalent fluid application components so as to obtain the expected and desired function therein.

Appellant contends that DiRico does not suggest the use of a carriage assembly with support arms pivotally coupled to the printing tower at one end and to an inking/coating apparatus at the other end. However, DiRico is applied to teach conventional doctor blade and applicator roller structure as applied above.

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Art Unit 2854

- **Claim 3 stands rejected under 35 U.S.C. 103(a)** as being unpatentable over Bird (4,841,903) in view of Sarda (4,889,051) and DiRico (4,685,414), as applied to claim 2, further in view of each of Rhorer (3,360,393) and Goettsch (2,531,036). It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a conventional resilient surface on the anilox applicator roller in Bird (4,841,903), as applied, especially in view of each of Rhorer (3,360,393) and Goettsch (2,531,036) who each discloses that it is old to utilize a resilient transfer surface on an anilox type applicator roller. The motivation would have been so as to obtain the desired fluid function from the use of a resilient transfer surface.

Appellant contends that neither the Rhorer nor Goettsch patents disclose use of a carriage assembly with support arms having a first end portion pivotally coupled to the printing unit tower and a second end portion pivotally coupled to an inking/coating apparatus. However, each of Rhorer (3,360,393) and Goettsch (2,531,036) has been applied for their teachings of utilizing a resilient transfer surface on an anilox type applicator roller.

- **Claims 16 stands rejected under 35 U.S.C. 103(a)** as being unpatentable over Bird (4,841,903) in view of Sarda (4,889,051), as applied to claim 13, further in view of Rodi (5,115,741). It would have been obvious to one having ordinary skill in the art at the time the invention was made to place the dryer devices in Bird (4,841,903) at any desired location including at a location disposed adjacent to the transfer cylinder for

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Art Unit 2854

discharging heated air onto a freshly printed or coated substrate; for example, if such were desired in addition to the locations defined therein. This is especially so in view of Rodi (5,115,741) who teaches that it is conventional to locate a dryer adjacent to a transfer cylinder. The motivation would have involved merely the selection of conventional dryer locations so as to obtain the expected function therefrom.

Appellant contends that Rodi does not disclose a support apparatus mounted on the printing press for pivotal movement which allows the inking/coating apparatus to be pivoted to a retracted position at an elevated position above the press. However, Rodi has been applied merely to teach that it is conventional to locate a dryer adjacent to a transfer cylinder.

• **Claim 22 stands rejected under 35 U.S.C. 103(a)** as being unpatentable over Bird (4,841,903) in view of Sarda (4,889,051), as applied to claim 1, further in view of each of Rhorer (3,360,393) and Goettsch (2,531,036). It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a conventional resilient surface on the applicator roller in Bird (4,841,903) especially in view of each of Rhorer (3,360,393) and Goettsch (2,531,036) who each discloses that it is old to utilize a resilient transfer surface on an applicator roller. The motivation would have been so as to obtain the expected fluid function from the use of a resilient transfer surface.


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Art Unit 2854

• **Claim 23 stands rejected under 35 U.S.C. 103(a)** as being unpatentable over Bird (4,841,903) in view of Sarda (4,889,051), as applied to claim 1, further in view of each of Rhorer (3,360,393) and Goettsch (2,531,036). It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a conventional resilient surface on the anilox applicator roller in Bird (4,841,903), especially in view of each of Rhorer (3,360,393) and Goettsch (2,531,036) who each discloses that it is old to utilize a resilient transfer surface on an anilox type applicator roller. The motivation would have been so as to obtain the desired fluid function from the use of a resilient transfer surface.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,


J. REED FISHER
PRIMARY EXAMINER
ART UNIT 2854

703 308-0525
August 18, 1998

Locke Purnell Rain Harrell, P.C.
Intellectual Property Section
2200 Ross Avenue
Suite 2200
Dallas, Texas 75201

105750-963760



GP 3307
2854/22
PATENT 11/88
JB

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Ronald M. Rendlemen, et al.

Serial No.: 08/435,798

Filed: May 4, 1995

Group Art Unit: 3307 2051

Examiner: J. K. Fisher

For: Retractable Inking/Coating Apparatus Having Ferris Movement Between Printing Units

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JUL 20 1998

GROUP 2500

JUL 17 1998

Assistant Commissioner
for Patents
Washington, DC 20231

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Assistant Commissioner for Patents, Washington, DC 20231

July 8, 1997
(Date of Deposit)
Barody Harris

Sir:

**Revocation of Previous Powers of Attorney
and Appointment of New Attorneys**

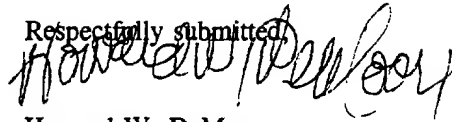
I, Howard W. DeMoore, as assignee of the entire interest in the above identified application, by virtue of an assignment recorded at Reel 7909, Frame 0438, hereby revoke all previous powers of attorney given in said application; and hereby appoint William D. Harris, Jr., Registration No. 19,243; and Michael W. Piper, Registration No. 39,800; of the firm of LOCKE PURNELL RAIN HARRELL, P.C., my attorneys to prosecute this application and to transact

all business in the Patent and Trademark Office connected therewith. I request that all correspondence be addressed to:

LOCKE PURNELL RAIN HARRELL, P.C.
Attention: Intellectual Property Section
2200 Ross Avenue
Suite 2200
Dallas, Texas 75201
Facsimile: 214/740-8800

Please direct telephone calls to William D. Harris, Jr., 214/704-8572.

Respectfully submitted,



Howard W. DeMoore

Date: 5/04/98

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TO: 5/10/98

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L. Spmell
11-16-98

73310/65981

PATENT #20

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Ronald M. Rendleman, et al.

Serial No.: 08/435,798

Filing Date: NOV 05 1998 May 4, 1995

Group: 3307



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(Date of Deposit)	11-2-98
(Name of Person Mailing Document)	Pamela K. Kerr
(Signature)	Pamela K. Kerr
(Date of Signature)	11-2-98

Request for Oral Hearing

For: RETRACTABLE INKING/COATING APPARTUS HAVING FERRIS MOVEMENT BETWEEN PRINTING UNITS

Assistant Commissioner for Patents
Washington, D.C. 20231

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NOV 13 1998

Dear Sir:

APPELLANTS' REQUEST FOR ORAL HEARING

Appellants respectfully request an oral hearing in the above-referenced matter

Appellants are enclosing a check in the amount of \$135, the fee required under 37 C.F.R.

§1.17(g). Appellants believe no additional fee is due for this paper. If this is incorrect, the Commissioner is hereby authorized to charge any fee that may be required or credit any overpayment to Deposit Account No. 12-1781.

Respectfully submitted,

By:
William D. Harris, Jr.
Registration No. 19,243

Date: November 2, 1998
LOCKE PURNELL RAIN HARRELL, P.C.
2200 Ross Avenue, Ste. 2200
Dallas, TX 75201-6776
214.740.8713
214.740.8800 (fax)

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NOV 13 1998
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73310/65981



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT

L. Spruell
11-16-98

21

Reply Brief

In re application of: Ronald M. Rendleman, et al.

Serial No.: 08/435,798

Filing Date: May 4, 1995

Group: 3307

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(Date of Deposit)	11-2-98
(Name of Person Mailing Document)	Pamela K. Kerr
(Signature)	<i>Pamela K. Kerr</i>
(Date of Signature)	11-2-98

For: RETRACTABLE INKING/COATING APPARTUS HAVING FERRIS MOVEMENT BETWEEN PRINTING UNITS

Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

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NOV 13 1998
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APPELLANTS' REPLY BRIEF

Appellants respectfully request consideration of the following point of argument raised in the Examiner's answer. This Reply Brief is submitted in triplicate. A Request for Oral Hearing is being submitted along with this Reply Brief, along with the required fee under 37 C.F.R. §1.17(g).

The following new point was raised by the Examiner with respect to claims 3, 22 and 23, which were rejected under 35 U.S.C. §112, first paragraph. The Examiner states that compliance with the requirements of the first paragraph of 35 U.S.C. §112 can only be obtained by one of ordinary skill in the art by extensive experimentation. The Examiner also states in his answer that the Appellant has argued that the rejection of claims 3, 22 and 23 under 35 U.S.C. §112 is

inconsistent with the rejection of the claims under 35 U.S.C. §103 on one hand, and on the other hand that the rejection of the claims under §112, first paragraph is inconsistent with the rejection of those claims under 35 U.S.C. §103. Appellants submit that the disclosure, as filed, is enabling and that no undue experimentation is necessary by one of ordinary skill in the art to obtain possession of Appellants' invention.

Appellants' contention has been that one of ordinary skill in the art would readily understand what is meant by "an anilox roller having a resilient transfer surface," and that Appellants' Specification, as filed, does indeed provide an enabling disclosure. It is well-established that the specification need not disclose what is well-known to those skilled in the art and preferably omits that which is well-known and already available to the public. *In re Buchner*, 929 F.2d 660, 18 U.S.P.Q.2d 1331 (Fed. Cir. 1991). Appellants' position is supported by the very fact that the references that are cited by the Examiner in rejecting claims 3, 22 and 23 disclose the use of rubber or resilient transfer surfaces. Both of the references of *Rhorer* and *Goettsch* are fairly old and give evidence to the fact that utilization of resilient surfaces on rollers, including transfer rollers, has been known for many years. For instance, *Goettsch* teaches a transfer roller 12 having a rubber peripheral portion for transferring adhesive or other pattern forming material to a sheet A.

As the use of rubber or other resilient transfer surfaces is well-known in the art, Appellants submit that no undue experimentation would be necessary by those skilled in the art to provide a resilient transfer surface to an anilox roller. The resilient transfer surface of the anilox roller provides a means for accommodating variations or nonuniformities in the surface of the plate cylinder. While the use of resilient surfaces on rollers is old, it is the use of such a surface on an

anilox roller that forms a part of Appellants' invention. As such, the recitation of Appellants' resilient transfer surface should be adequate to provide an enabling disclosure.

Appellants would also point out that it is the requirement of the Examiner to give reasons for the uncertainty of the enablement. See *In re Bowen*, 492 F.2d 859, 181 U.S.P.Q. 48 (CCPA 1974).

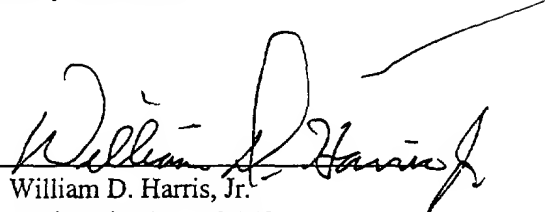
The Examiner, in his rejection of the claims, has merely made an assertion that Appellants have not provided a sufficient disclosure to reasonably convey to one skilled in the art, at the time the application was filed, that the Appellants had possession of the claimed invention and that the disclosure is not sufficient to place the artisan in possession of the invention without undue experimentation. The rejection is therefore improper.

For the reasons discussed above and those discussed in Appellants' primary brief, it is respectfully submitted that the claims herein are patentable over the prior art and that the specification as filed provides an enabling disclosure. Accordingly, it is respectfully requested that the rejection of the claims as set forth in the final rejection be reversed.

Appellants believe no fee is due for this paper. If this is incorrect, the Commissioner is hereby authorized to charge any fee that may be required or credit any overpayment to Deposit Account No. 12-1781.

Respectfully submitted,

By:


William D. Harris, Jr.
Registration No. 19,243

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NOV 11 1998

Date: November 2, 1998
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THE GAZETTE

23



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO.
08/435,788	5/4/95	Kendlemen	1178/09001

Sidley & Austin
717 North Harwood
Suite 3400
Dallas TX 75201

EXAMINER	
Fisher	
ART UNIT	PAPER NUMBER

2854
DATE MAILED: 11-18-98

This is in response to the Power of Attorney filed 7-13-98

- ☒ 1. The Power of Attorney to you in this application has been revoked by the applicant. Future correspondence will be mailed to the new address of record. 37 CFR 1.33.
- ☐ 2. The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record. (37 CFR 1.33).
- ☐ 3. The withdrawal as attorney in this application has been accepted. Future correspondence will be mailed to the new address of record. 37 CFR 1.33.

Disha Bailey
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Patent and Trademark Office

- ☒ 4. The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the below-noted address as provided by 37 CFR 1.33.
- ☐ 5. The Power of Attorney in this application is not accepted for the reason(s) checked below:
- ☐ a. The Power of Attorney is from an assignee and the Certificate required by 37 CFR 3.73 (b) has not been received.
 - ☐ b. The person signing for the assignee has omitted their empowerment to sign on behalf of the assignee.
 - ☐ c. The inventor(s) is without authority to appoint attorneys since the assignee has intervened as provided by 37 CFR 3.71.
 - ☐ d. The signature of _____, a co-inventor in this application, has been omitted. The Power of Attorney will be entered upon receipt of confirmation signed by said co-inventor.
 - ☐ e. The person(s) appointed in the Power of Attorney is not registered to practice before the U.S. Patent & Trademark Office.
 - ☐ f. The revocation is not signed by the applicant, the assignee of the entire interest, or one particular principal attorney having the authority to revoke.

Loke, Purnell, Bain Harrell
Intellectual Property Section
2200 Ross Avenue
Dallas, TX 75201

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APPLICATION NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO.
08/435,788	5/4/95	Kendlemen	1178/09001

Sidley & Austin
717 North Harwood
Suite 3400
Dallas TX 75201

EXAMINER
Fisher
ART UNIT
PAPER NUMBER

2854
DATE MAILED:
11-18-98

This is in response to the Power of Attorney filed 7-13-98

- ☒ 1. The Power of Attorney to you in this application has been revoked by the applicant. Future correspondence will be mailed to the new address of record. 37 CFR 1.33.
- ☐ 2. The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record. (37 CFR 1.33).
- ☐ 3. The withdrawal as attorney in this application has been accepted. Future correspondence will be mailed to the new address of record. 37 CFR 1.33.

Disha Bailey
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Patent and Trademark Office

- ☒ 4. The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the below-noted address as provided by 37 CFR 1.33.
- ☐ 5. The Power of Attorney in this application is not accepted for the reason(s) checked below:
- ☐ a. The Power of Attorney is from an assignee and the Certificate required by 37 CFR 3.73 (b) has not been received.
- ☐ b. The person signing for the assignee has omitted their empowerment to sign on behalf of the assignee.
- ☐ c. The inventor(s) is without authority to appoint attorneys since the assignee has intervened as provided by 37 CFR 3.71.
- ☐ d. The signature of _____, a co-inventor in this application, has been omitted. The Power of Attorney will be entered upon receipt of confirmation signed by said co-inventor.
- ☐ e. The person(s) appointed in the Power of Attorney is not registered to practice before the U.S. Patent & Trademark Office.
- ☐ f. The revocation is not signed by the applicant, the assignee of the entire interest, or one particular principal attorney having the authority to revoke.

Locke, Purnell, Cain Harrell
Intellectual Property Section
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Dallas, TX 75201

Disha Bailey
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24



**UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office**

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/435,798	05/04/95	RENDLEMAN	R 11178/09001

MM11/1123
LOCKE PURNELL RAIN HARRELL, P.C.
ATTN: INTELLECTUAL PROPERTY SECTION
2200 ROSS AVENUE
SUITE 2200
DALLAS TX 75201

EXAMINER

FISHER, J

ART UNIT

PAPER NUMBER

2854

DATE MAILED: 11/23/98

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Commissioner of Patents and Trademarks

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Art Unit: 2854

ATTACHMENT TO PTOL-90

The reply brief filed November 5, 1998 has been entered and considered but no further response by the examiner is deemed necessary.

The examiner's answer filed September 1, 1998 is maintained in full. Reference is made to the examiner's answer in response to the issues presented in the reply brief and for a full explanation of the examiner's position taken on the respective issues.

The application has been forwarded to the Board of Patent Appeals and Interferences for decision on the appeal.


J. REED FISHER
PRIMARY EXAMINER
ART UNIT 2854

703 308-0525
November 19, 1998

08/646077-051504

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✓	2. Restr. (1 mo.)		5-7-96
✓	3. Election		6-11-96
✓	4. Chg. of Address		4-22-96
✓	5. Prior art Paper		6-24-96
✓	6. Suppl. Prior art		6-26-96
✓	7. Reg. (3 mos.)		8-19-96
✓	8. Amtd A + Reg. Ext. Time (2 mos.)	opt'd to 1-19-97	1-23-97 (com. 1-21-97) 1-18 (nd.) 1-20 (nd.)
✓	9. FINAL RES. (3 mos.)		4-23-97
✓	10. IDS		6-17-97
✓	11. Resp to IDS (Petition Granted)		07/21/97
✓	12. Appeal Notice	Reg. Ext. Time (2 mos.) opt'd to 9-23-97	9-29-97 (com. 9-23-97)
✓	13. Revocation + P/atty (by Assignee)		11-19-97
✓	14. Notice of revocation + Acceptance		12/01/97
✓	15. Brief + (2 mos.) opt'd to 2-21-98		1-27-98
3-26-98 gw	16. PTO 462		3-27-98
✓	17. Response		5-1-98
5-19-98	18. Change of Address		5-1-98
6/11/98	19. Examiner Answer		9-1-98
✓	20. Request for Oral Hearing		11-5-98
✓	21. Reply Brief		11-5-98
✓	22. Revoked P/A		7-13-98
✓	23. Notice of Acceptance		11-17-98
11-26-98 gw	24. Reply Brief Noted		11-23-98
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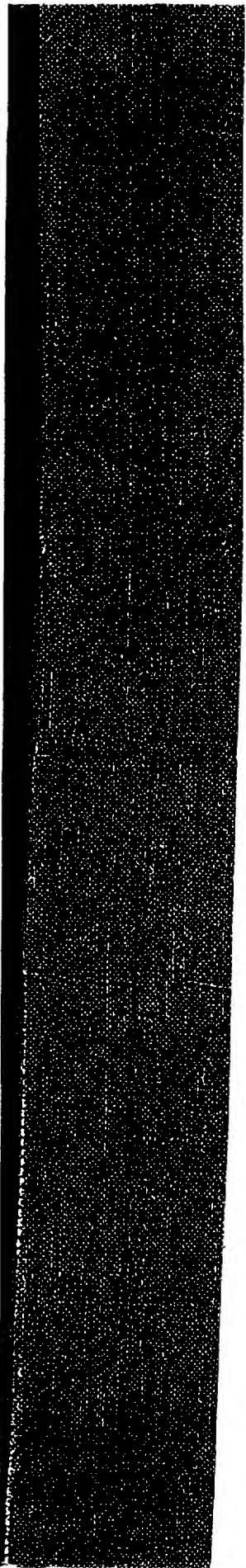
<div style="text-align: center;">99-1348</div>	<div style="border: 1px solid black; padding: 2px;"> Class S ISSUE CLASS </div>	<div style="border: 1px solid black; padding: 2px;"> UTILITY SERIAL NUMBER 00 435798 </div>	<div style="border: 1px solid black; padding: 2px;"> PATENT DATE </div>	<div style="border: 1px solid black; padding: 2px;"> PATENT NUMBER </div>
<div style="border: 1px solid black; padding: 2px;"> SERIAL NUMBER 00471747 </div>	<div style="border: 1px solid black; padding: 2px;"> FILING DATE 11/2/84 </div>	<div style="border: 1px solid black; padding: 2px;"> CLASS 101 </div>	<div style="border: 1px solid black; padding: 2px;"> SUBCLASS 177 </div>	<div style="border: 1px solid black; padding: 2px;"> GROUP ART UNIT 2854 </div>
<div style="border: 1px solid black; padding: 2px;"> EXAMINER JRFISHER </div>				
APPLICANTS: RONALD M. KENDLEMAN, DALLAS, TX; HOWARD W. DUMORE, DALLAS, TX; JOHN W. RICE, DALLAS, TX.				
CONTINUING DATA: VERIFIED <i>me JD</i>				
FOREIGN/INTL APPLICATION: VERIFIED <i>me JD</i>				
FOREIGN FILING LICENSE GRANTED: 05/15/95				
Foreign priority claimed 35 USC 119 conditions met <input type="checkbox"/> yes <input checked="" type="checkbox"/> no		AS FILED <input checked="" type="checkbox"/>	STATE OR COUNTRY TX	SHEETS DRWS. 1
Verified and Acknowledged <i>me JD</i>		TOTAL CLAIMS 1	INDEP. CLAIMS 1	FILING FEE RECEIVED 11178109001
ADDRESS: <i>Sidley 4500 1201 E Ross Avenue Dallas, Texas TX 75201</i>		ATTORNEY'S DOCKET NO. <i>11178109001</i> <i>12-1-97</i> <i>7-16-96</i>		
TITLE: RETRACTABLE INFLING/COATING APPARATUS HAVING FERRIS MOVEMENT BETWEEN PRINTING UNITS				

PARTS OF APPLICATION FILED SEPARATELY		Applications Examiner	
NOTICE OF ALLOWANCE MAILED		CLAIMS ALLOWED	
Assistant Examiner		Total Claims	Print Claim
ISSUE FEE		DRAWING	
Amount Due	Date Paid	Sheets Drwg.	Figs. Drwg.
Primary Examiner		Print Fig.	
Label Area		ISSUE BATCH NUMBER	
PREPARED FOR ISSUE		WARNING: The information disclosed herein may be restricted. Unauthorized disclosure may be prohibited by the United States Code Title 35, Sections 122, 181 and 368. Possession outside the U.S. Patent & Trademark Office is restricted to authorized employees and contractors only.	

SEARCHED			
Class	Sub.	Date	Exmr.
101	183 184 185 424.1 350 363 351 352 247 131. 141	8/4/96	JPF
118	46. 112 155 355 261 262 217 update	7/16/97	JPF

INTERFERENCE SEARCHED			
Class	Sub.	Date	Exmr.

SEARCH NOTES		
	Date	Exmr.



(RIGHT INSIDE)

[illegible][illegible][illegible]

UTHORITY CODE		
FAMILY NAME		
GIVEN NAME		
CITY		

NAME SUFFIX					
STATE/CTRY CODE					

[illegible]

AUTHORITY CODE		
FAMILY NAME		
GIVEN NAME		
CITY		

[illegible]

MORE

FORM PTO-3641155
USCOMM-DC 80-368

OFFICE OF COMMERCE
MARK OFFICE

A.P.
6-24-95

1
TOSTED "GALFEE"

NOTICE OF DRAFTSPERSON'S PATENT DRAWING REVIEW

PTO Draftpersons review all originally filed drawings regardless of whether they are designated as formal or informal. Additionally, patent Examiners will review the drawings for compliance with the regulations. Direct telephone inquiries concerning this review to the Drawing Review Branch, 703-305-8404.

The drawings filed (insert date) 2/4/95, are

A ☐ not objected to by the Draftsperson under 37 CFR 1.84 or 1.152.
 B ☐ objected to by the Draftsperson under 37 CFR 1.84 or 1.152 as indicated below. The Examiner will require submission of new, corrected drawings when necessary. Corrected drawings must be submitted according to the instructions on the back of this Notice.

1. DRAWINGS 37 CFR 1.84(a): Acceptable categories of drawings:

Black ink Color

☐ Not black solid lines Fig(s) _____
☐ Color drawings are not acceptable until petition is granted Fig(s) _____

2. PHOTOGRAPHS 37 CFR 1.84(b)

☐ Photographs are not acceptable until petition is granted Fig(s) _____
☐ Photographs not properly mounted (must use bristol board or photographic double-weight paper). Fig(s) _____
☐ Poor quality (half-tone) Fig(s) _____

3. GRAPHIC FORMS 37 CFR 1.84(d)

☐ Chemical or mathematical formula not labeled as separate figure Fig(s) _____
☐ Group of waveforms not presented as a single figure, using common vertical axis with time extending along horizontal axis. Fig(s) _____
☐ Individual waveform not identified with a separate letter designation adjacent to the vertical axis. Fig(s) _____

4. TYPE OF PAPER 37 CFR 1.84(c)

☐ Paper not flexible, strong, white, smooth, nonshiny, and durable Sheet(s) _____
☐ Erasures, alterations, overwritings, interlineations, cracks, creases, and folds copy machine marks not accepted Fig(s) _____
☐ Mylar, velum paper is not acceptable (too thin) Fig(s) _____

5. SIZE OF PAPER 37 CFR 1.84(f): Acceptable sizes.

21.6 cm. by 35.6 cm. (8 1/2 by 14 inches)
 21.6 cm. by 33.1 cm. (8 1/2 by 13 inches)
 21.6 cm. by 27.9 cm. (8 1/2 by 11 inches)
 21.0 cm. by 29.7 cm. (DIN size A4)

All drawing sheets not the same size. Sheet(s) _____
 Drawing sheet not an acceptable size. Sheet(s) _____

6. MARGINS 37 CFR 1.84(g): Acceptable margins:

Paper size

21.6 cm X 35.6 cm (8 1/2 X 14 inches)	21.6 cm X 33.1 cm (8 1/2 X 13 inches)	21.6 cm X 27.9 cm (8 1/2 X 11 inches)	21.0 cm X 29.7 cm (DIN Size A4)
5 1/8 X 14 (2")	2 5/8 X 13 (1")	2 5/8 X 11 (7")	2 5/8 X 11 (7")
L: 64 cm. (1/4")	64 cm. (1/4")	64 cm. (1/4")	2.5 cm.
R: 64 cm. (1/4")	64 cm. (1/4")	64 cm. (1/4")	1.5 cm.
B: 64 cm. (1/4")	64 cm. (1/4")	64 cm. (1/4")	1.0 cm.

☐ Margins do not conform to chart above.

Sheet(s) _____

☐ Top (T) ☐ Left (L) ☐ Right (R) ☐ Bottom (B)

7. VIEWS 37 CFR 1.84(h)

REMINDER: Specification may require revision to correspond to drawing changes.

☐ All views not grouped together. Fig(s) _____
☐ Views connected by projection lines or lead lines. Fig(s) _____
 Partial views 37 CFR 1.84(h) 2

☐ View and enlarged view not labeled separately or properly. Fig(s) _____

Sectional views. 37 CFR 1.84 (h) 3

☐ Hatching not indicated for sectional portions of an object. Fig(s) _____

☐ Cross section not drawn same as view with parts in cross section with regularly spaced parallel oblique strokes. Fig(s) _____

8. ARRANGEMENT OF VIEWS 37 CFR 1.84(i)

☐ Words do not appear on a horizontal, left-to-right fashion when page is either upright or turned so that the top becomes the right side, except for graphs. Fig(s) _____

9. SCALE 37 CFR 1.84(k)

☐ Scale not large enough to show mechanism with crowding when drawing is reduced in size to two-thirds in reproduction Fig(s) _____
☐ Indication such as "actual size" or scale 1/2" not permitted. Fig(s) _____

10. CHARACTER OF LINES, NUMBERS, & LETTERS 37 CFR 1.84(l)

☐ Lines, numbers & letters not uniformly thick and well defined, clean, durable, and black (except for color drawings). Fig(s) _____

11. SHADING 37 CFR 1.84(m)

☐ Solid black shading areas not permitted. Fig(s) _____

☐ Shade lines, pale, rough and blurred Fig(s) _____

12. NUMBERS, LETTERS, & REFERENCE CHARACTERS 37 CFR 1.84(p)

☐ Numbers and reference characters not plain and legible. 37 CFR 1.84(p)(1) Fig(s) _____

☐ Numbers and reference characters not oriented in same direction as the view. 37 CFR 1.84(p)(1) Fig(s) _____

☐ English alphabet not used. 37 CFR 1.84(p)(2) Fig(s) _____

☐ Numbers, letters, and reference characters do not measure at least .32 cm. (1/8 inch) in height. 37 CFR(p)(3) Fig(s) _____

13. LEAD LINES 37 CFR 1.84(q)

☐ Lead lines cross each other. Fig(s) _____
☐ Lead lines missing Fig(s) _____

14. NUMBERING OF SHEETS OF DRAWINGS 37 CFR 1.84(t)

☐ Sheets not numbered consecutively, and in Arabic numerals, beginning with number 1. Sheet(s) _____

15. NUMBER OF VIEWS 37 CFR 1.84(u)

☐ Views not numbered consecutively, and in Arabic numerals, beginning with number 1. Fig(s) _____

☐ View numbers not preceded by the abbreviation Fig. Fig(s) _____

16. CORRECTIONS 37 CFR 1.84(w)

☐ Corrections not made from prior PTO-948. Fig(s) _____

17. DESIGN DRAWING 37 CFR 1.152

☐ Surface shading shown not appropriate. Fig(s) _____
☐ Solid black shading not used for color contrast. Fig(s) _____

COMMENTS:

ATTACHMENT TO PAPER NO. _____

REVIEWER [Signature]

DATE 6/26/95

PTO Copy

PATENT APPLICATION FEE DETERMINATION RECORD

Effective October 1, 1996

08/435798

CLAIMS AS FILED - PART I

FOR	NUMBER FILED (Column 1)	NUMBER EXTRA (Column 2)
BASIC FEE		
TOTAL CLAIMS	minus 20 = *	
INDEPENDENT CLAIMS	minus 3 = *	
MULTIPLE DEPENDENT CLAIM PRESENT		

* If the difference in column 1 is less than zero, enter "0" in column 2

SMALL ENTITY

OR

OTHER THAN SMALL ENTITY

RATE	FEE
	385.00
x\$11=	
x40=	
+130=	
TOTAL	

RATE	FEE
	770.00
x\$22=	
x80=	
+260=	
TOTAL	

CLAIMS AS AMENDED - PART II

	CLAIMS REMAINING AFTER AMENDMENT (Column 1)		HIGHEST NUMBER PREVIOUSLY PAID FOR (Column 2)	PRESENT EXTRA (Column 3)
Total	* 34	Minus	** 34	= —
Independent	* 11	Minus	*** 6	= 5
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				

SMALL ENTITY

OR

OTHER THAN SMALL ENTITY

RATE	ADDITIONAL FEE
x\$11=	
x40=	200
+130=	
TOTAL ADDIT. FEE	200

RATE	ADDITIONAL FEE
x\$22=	
x80=	
+260=	
TOTAL ADDIT. FEE	

	CLAIMS REMAINING AFTER AMENDMENT (Column 1)		HIGHEST NUMBER PREVIOUSLY PAID FOR (Column 2)	PRESENT EXTRA (Column 3)
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				

RATE	ADDITIONAL FEE
x\$11=	
x40=	
+130=	
TOTAL ADDIT. FEE	

RATE	ADDITIONAL FEE
x\$22=	
x80=	
+260=	
TOTAL ADDIT. FEE	

	CLAIMS REMAINING AFTER AMENDMENT (Column 1)		HIGHEST NUMBER PREVIOUSLY PAID FOR (Column 2)	PRESENT EXTRA (Column 3)
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				

RATE	ADDITIONAL FEE
x\$11=	
x40=	
+130=	
TOTAL ADDIT. FEE	

RATE	ADDITIONAL FEE
x\$22=	
x80=	
+260=	
TOTAL ADDIT. FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
 ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20."
 *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3."
 The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

PATENT APPLICATION FEE DETERMINATION RECORD

Effective October 1, 1994

08/435798

CLAIMS AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA
BASIC FEE		
TOTAL CLAIMS	34 minus 20 =	14
INDEPENDENT CLAIMS	6 minus 3 =	3
MULTIPLE DEPENDENT CLAIM PRESENT		

* If the difference in column 1 is less than zero, enter "0" in column 2

SMALL ENTITY

OR

OTHER THAN SMALL ENTITY

RATE	FEE
	365.00
x\$11=	154
x38=	114
+120=	
TOTAL	633

RATE	FEE
	730.00
x\$22=	
x76=	
+240=	
TOTAL	

CLAIMS AS AMENDED - PART II

AMENDMENT A	(Column 1)	(Column 2)	(Column 3)	(Column 4)
	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				

SMALL ENTITY

OR

OTHER THAN SMALL ENTITY

RATE	ADDITIONAL FEE
x\$11=	
x38=	
+120=	
TOTAL	
ADDIT. FEE	

RATE	ADDITIONAL FEE
x\$22=	
x76=	
+240=	
TOTAL	
ADDIT. FEE	

AMENDMENT B	(Column 1)	(Column 2)	(Column 3)	(Column 4)
	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				

RATE	ADDITIONAL FEE
x\$11=	
x38=	
+120=	
TOTAL	
ADDIT. FEE	

RATE	ADDITIONAL FEE
x\$22=	
x76=	
+240=	
TOTAL	
ADDIT. FEE	

AMENDMENT C	(Column 1)	(Column 2)	(Column 3)	(Column 4)
	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				

RATE	ADDITIONAL FEE
x\$11=	
x38=	
+120=	
TOTAL	
ADDIT. FEE	

RATE	ADDITIONAL FEE
x\$22=	
x76=	
+240=	
TOTAL	
ADDIT. FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
 ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20."
 *** If the Highest Number Previously Paid For IN THIS SPACE is less than 3, enter "3."
 The Highest Number Previously Paid For (Total or Independent) is the highest number found in the appropriate box in column 1.

THE "SPECIAL"

22

Class	Subclass
101	177

ABANDONED

PATENT DATE	PATENT NUMBER
-------------	---------------

SERIAL NUMBER	FILING DATE	CLASS	SUBCLASS	GROUP ART UNIT	EXAMINER
		101	177	3307	JR FISHER

APPLICANTS

Continued on next page

none

Foreign priority claimed 35 USC 119 conditions met	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	AS FILED	STATE OR COUNTRY	SHEETS DRWGS.	TOTAL CLAIMS	INDEP. CLAIMS	FILING FEE RECEIVED	ATTORNEY'S DOCKET NO.
Verified and Acknowledged	Examiner's Initials							11178/10801

ADDRESS	Locke Purnell Rains Harrell Intellectual Property Section 2200 Ross Avenue Suite 2200 Dallas, TX 75201
---------	--

TITLE

U.S. DEPT. OF COMM./PAT. & TM—PTO-436L (Rev.12-94)

PARTS OF APPLICATION FILED SEPARATELY		Applications Examiner	
NOTICE OF ALLOWANCE MAILED		CLAIMS ALLOWED	
		Total Claims	Print Claim
ISSUE FEE		DRAWING	
Amount Due	Date Paid	Sheets Drwg.	Figs. Drwg.
		Print Fig.	
Label Area		ISSUE BATCH NUMBER	
PREPARED FOR ISSUE			
WARNING: The information disclosed herein may be restricted. Unauthorized disclosure may be prohibited by the United States Code Title 35, Sections 122, 181 and 368. Possession outside the U.S. Patent & Trademark Office is restricted to authorized employees and contractors only.			

Form PTO-436A
(Rev. 8/92)

(FACE)

08/538422

PATENT APPLICATION



08538422

APPROVED FOR LICENSE ☐INITIALS 179526Date
Entered
or
Counted

CONTENTS

Date
Received
or
Mailed

	1. Application <u>✓</u> papers.	
	2. <u>I.D.S.</u>	6-24-96
	3. <u>I.D.S.</u>	6-26-96
1-6R	4. <u>Rej. (3 mos.)</u>	
	5. <u>Rev. + Patty (by Assignee)</u>	6-16-97
	6. <u>Notice of revocation + acceptance</u>	06/17/97
	7. <u>Power To Inquest + make copies</u>	6-20-97
	8. <u>Undt A + Reg. Ext. Time</u> (3 mos.) <u>got'd to 7-9-97</u>	7-14-97 [7-9-97]
10-27M	9. <u>FINAL REJ. (3 mos.)</u>	10-28-97
	10. <u>Appeal Notice</u>	2-2-98 [Comm. (-23-98)]
5-19-96	11. <u>Change of Address</u>	5-1-98
7-30 (2.2)	12. <u>St. of Aband.</u>	7-31-98
	13. <u>Photo of P/A</u>	7-13-98
	14. <u>Notice of acceptance</u>	10-7-98
	15. <u>Reg. Ext (5) yr</u>	8-19-98
	16. <u>Abandonment withdrawn</u>	
3-1-99	17. <u>Pto 1432</u>	3-2-99
	18. <u>Request for Access</u>	11-24-99
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(FRONT)

POSITION	ID NO.	DATE
CLASSIFIER		8/11-17-95
EXAMINER	3AD	11-17-95
TYPIST	442	1/2/96
VERIFIER	277	1-3
CORPS CORR.		
SPEC. HAND		
FILE MAINT.		
DRAFTING		

INDEX OF CLAIMS

Claim	Final	Original	Date
1			
2			
3			
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Claim	Final	Original	Date
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SYMBOLS

- ✓ Rejected
- Allowed
- (Through numeral) Canceled
- + Restricted
- N Non-elected
- I Interference
- A Appeal
- O Objected

SEARCHED

Class	Sub.	Date	Exmr.
01	183 184 185 424.1 350 363 351 802 647 186 141 80 96 202 258 259 261 262 217 update 142287	12/31/96	SP

SEARCH NOTES

	Date	Exmr.

INTERFERENCE SEARCHED

ass	Sub.	Date	Exmr.

[illegible]

PATENT

Attorney Docket
No. B6038A

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Box **PATENT APPLICATION**
Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Transmitted herewith for filing is the patent applica-
tion of:

Joint Inventors: HOWARD W. DEMOORE, ET AL.

For: RETRACTABLE PRINTING/COATING UNIT OPERABLE ON THE
PLATE AND BLANKET CYLINDERS SIMULTANEOUSLY FROM THE
DAMPENER SIDE OF THE FIRST PRINTING UNIT OR ANY
CONSECUTIVE PRINTING UNIT OF ANY ROTARY OFFSET
PRINTING PRESS

Enclosed are:

<u>1</u>	pages of abstract	<u>X</u>	Combined Declaration/ Power of Attorney
<u>35</u>	pages of specification	<u>X</u>	Statement of Small Entity Status
<u>10</u>	pages of claims		Assignment
<u>10</u>	pages of drawings		
Other: _____		<u>X</u>	Underpayment/Overpayment Instructions
		<u>X</u>	Post Office Express Certificate <u>NB437682773</u>

The filing fee has been calculated as shown below:

For:	No. Filed	No. Extra	Small Entity Rate	Fee
Basic Fee				\$375.00
Total Claims	46 - 20 =	26	x \$ 11....	506.00
Indep. Claims	4 - 3 =	1	x \$ 39....	39.00
Multiple dependent claims		-NONE-	+ \$125....	-0-
Assignment Recording Fee			\$ 40..	-0-
TOTAL.....				\$1,045.00

Our check in the amount of \$1,045.00 is enclosed.

Respectfully submitted,

Date: Oct. 27, 1995

Dennis T. Griggs
Dennis T. Griggs
Attorney for Applicant
Registration No. 27,790

AKIN, GUMP, STRAUSS, HAUER & FELD, L.L.P.
1700 Pacific Avenue, Suite 4100
Dallas, Texas 75201-4618
(214) 969-2747


08/538422

PATENT APPLICATION SERIAL NO. 08/538422

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE
FEE RECORD SHEET

290 SB 11/06/95 08538422
1 201 1,045.00 CR B40384

O/C Refuse
B. 2.01-01

BAR CODE LABEL		U.S. PATENT APPLICATION			
					
SERIAL NUMBER		FILING DATE	CLASS	GROUP ART UNIT	
08/538,422		10/02/95	101	3307	
APPLICANT HOWARD W. DEMOORE, DALLAS, TX; RONALD M. RENDLEMAN, DALLAS, TX; JOHN W. BIRD, CARROLLTON, TX.					
CONTINUING DATA*** VERIFIED _____					
FOREIGN/PCT APPLICATIONS*** VERIFIED _____					
FOREIGN FILING LICENSE GRANTED 01/02/96 ***** SMALL ENTITY *****					
STATE OR COUNTRY	SHEETS DRAWING	TOTAL CLAIMS	INDEPENDENT CLAIMS	FILING FEE RECEIVED	ATTORNEY DOCKET NO.
TX	10	31	4	\$825.00	B6038A
ADDRESS	DENNIS T GRIGGS AKIN GUMP STRAUSS HAUER & FELD 1700 PACIFIC AVENUE SUITE 4100 DALLAS TX 75201-4618				
TITLE	RETRACTABLE PRINTING/COATING UNIT OPERABLE ON THE PLATE AND BLANKET CYLINDERS SIMULTANEOUSLY FROM THE DAMPENER SIDE OF THE FIRST PRINTING UNIT OR ANY CONSECUTIVE PRINTING UNIT OF ANY ROTARY OFFSET PRINTING PRESS				
This is to certify that annexed hereto is a true copy from the records of the United States Patent and Trademark Office of the application which is identified above. By authority of the COMMISSIONER OF PATENTS AND TRADEMARKS Date _____ Certifying Officer _____					



PATENT

Attorney Docket
No. B6038A

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of)
)
HOWARD W. DEMOORE,)
RONALD M. RENDLEMAN, and)
JOHN W. BIRD,)
)
Serial No.:)
)
Filed: Herewith)
)
For: RETRACTABLE PRINTING/COATING)
UNIT OPERABLE ON THE PLATE)
AND BLANKET CYLINDERS)
SIMULTANEOUSLY FROM THE)
DAMPENER SIDE OF THE FIRST)
PRINTING UNIT OR ANY CONSECU-)
TIVE PRINTING UNIT OF ANY)
ROTARY OFFSET PRINTING PRESS)

Group Art Unit _____

Examiner:

Box PATENT APPLICATION
Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

CORRESPONDENCE ADDRESS

Applicant requests that all correspondence regarding the
above-identified patent application be directed to:

Dennis T. Griggs
Akin, Gump, Strauss, Hauer & Feld, L.L.P.
1700 Pacific Avenue, Suite 4100
Dallas, Texas 75201-4618

Please direct all telephone calls to:

Dennis T. Griggs
(214) 969-2747

Respectfully submitted,

Date: Oct. 2, 1995

Dennis T. Griggs
Dennis T. Griggs
Registration No. 27,790
Attorney for Applicant



PATENT

Attorney Docket
No. B6038A

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of)
HOWARD W. DEMOORE,)
RONALD M. RENDLEMAN, and)
JOHN W. BIRD,)
Serial No.:)
Filed: Herewith)
For: RETRACTABLE PRINTING/COATING)
UNIT OPERABLE ON THE PLATE)
AND BLANKET CYLINDERS)
SIMULTANEOUSLY FROM THE)
DAMPENER SIDE OF THE FIRST)
PRINTING UNIT OR ANY CONSECU-)
TIVE PRINTING UNIT OF ANY)
ROTARY OFFSET PRINTING PRESS)

Group Art Unit _____

Examiner:

Box **PATENT APPLICATION**
Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

INSTRUCTIONS AS TO
UNDERPAYMENT/OVERPAYMENT OF FEES

1. UNDERPAYMENT

The Commissioner is hereby authorized to charge any fee deficiency relating to this MATTER~ to:

Deposit Account No. 01-0657

2. OVERPAYMENT

The Commissioner is hereby authorized to credit any fee overpayment relating to this MATTER~ to:

Deposit Account No. 01-0657

Respectfully submitted,

Date: Oct. 2, 1995

Dennis T. Griggs
Dennis T. Griggs
Registration No. 27,790
Attorney for Applicant

AKIN, GUMP, STRAUSS, HAUER & FELD, L.L.P.
1700 Pacific Avenue, Suite 4100
Dallas, Texas 75201-4618
(214) 969-2747

CERTIFICATE OF MAILING (37 C.F.R. §1.8a)

I hereby certify that this INSTRUCTIONS AS TO OVERPAYMENT/UNDERPAYMENT OF FEES (along with any paper referred to as being attached or enclosed) is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231.

Date: 10/2/95

Anne Ziegler
(Typed name of person mailing paper)

Anne Ziegler
(Signature of person mailing paper)

00345796.051404

DTG1197510181DOCS86038A.UND



Attorney Docket
No. B6038A

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of
HOWARD W. DEMOORE,
RONALD M. RENDLEMAN, and
JOHN W. BIRD,

Serial No.:

Filed: Herewith

For: RETRACTABLE PRINTING/COATING
UNIT OPERABLE ON THE PLATE
AND BLANKET CYLINDERS
SIMULTANEOUSLY FROM THE
DAMPENER SIDE OF THE FIRST
PRINTING UNIT OR ANY CONSEC-
UTIVE PRINTING UNIT OF ANY
ROTARY OFFSET PRINTING PRESS

Group Art Unit _____

Examiner:

Box PATENT APPLICATION
Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

CERTIFICATE OF MAIL BY "EXPRESS MAIL"

"Express Mail" Mailing Label No. NB 437 682 773

Date of Deposit: October 2, 1995

I hereby certify that the attached patent application papers and documents referred to as enclosed therewith are being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 C.F.R. §1.10 in an envelope addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231 on the date of deposit indicated above.

Anne Ziegler
(Typed Name of Person Depositing
Envelope in Express Mail Facility)

Anne Ziegler
Signature

AKIN, GUMP, STRAUSS, HAUER & FELD, L.L.P.
1700 Pacific Avenue, Suite 4100
Dallas, Texas 75201-4618
(214) 969-2747



1,045-

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TITLE: "RETRACTABLE PRINTING/COATING UNIT OPERABLE ON THE PLATE AND BLANKET CYLINDERS SIMULTANEOUSLY FROM THE DAMPENER SIDE OF THE FIRST PRINTING UNIT OR ANY CONSECUTIVE PRINTING UNIT OF ANY ROTARY OFFSET PRINTING PRESS"

Field of the Invention

1 This invention relates generally to sheet-fed or web-
2 fed, rotary offset lithographic printing presses, and more
3 particularly, to a new and improved inking/coating apparatus for
4 the in-line application of aqueous or flexographic printing inks,
5 primer or protective/decorative coatings applied simultaneously to
6 the plate and blanket of the first or any consecutive printing
7 unit of any lithographic printing press.

8 Background of the Invention

9 Conventional sheet-fed, rotary offset printing presses
10 typically include one or more printing units through which
11 individual sheets are fed and printed. After the last printing
12 unit, freshly printed sheets are transferred by a delivery
13 conveyor to the delivery end of the press where the freshly
14 printed and/or coated sheets are collected and stacked uniformly.
15 In a typical sheet-fed, rotary offset printing press such as the
16 Heidelberg Speedmaster line of presses, the delivery conveyor
17 includes a pair of endless chains carrying gripper bars with

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1 gripper fingers which grip and pull freshly printed sheets from
2 the last impression cylinder and convey the sheets to the sheet
3 delivery stacker.

4 Since the inks used with sheet fed rotary offset
5 printing presses are typically wet and tacky, special precautions
6 must be taken to prevent marking and smearing of the freshly
7 printed or coated sheets as the sheets are transferred from one
8 printing unit to another. The printed ink on the surface of the
9 sheet dries relatively slowly and is easily smeared during subse-
10 quent transfer between printing units. Marking, smearing and
11 smudging can be prevented by a vacuum assisted sheet transfer
12 apparatus as described in the following U.S. Patents: 5,113,255;
13 5,127,329; 5,205,217; 5,228,391; 5,243,909; and 5,419,254, all to
14 Howard W. DeMoore, co-inventor, and manufactured and sold by
15 Printing Research, Inc. of Dallas, Texas, U.S.A. under its
16 trademark BACVAC™.

17 In some printing jobs, offsetting is prevented by
18 applying a protective and/or decorative coating material over all
19 or a portion of the freshly printed sheets. Some coatings are
20 formed of a UV-curable or water-dispersed resin applied as a
21 liquid solution over the freshly printed sheets to protect the ink
22 from offsetting or set-off and improve the appearance of the
23 freshly printed sheets. Such coatings are particularly desirable
24 when decorative or protective finishes are applied in the printing
25 of posters, record jackets, brochures, magazines, folding cartons
26 and the like.

27 Description of the Prior Art

28 Various arrangements have been made for applying the
29 coating as an in-line printing operation by using the last
30 printing unit of the press as the coating application unit. For
31 example, U.S. Patents 4,270,483; 4,685,414; and 4,779,557 disclose
32 coating apparatus which can be moved into position to permit the
33 blanket cylinder of the last printing unit of a printing press to
34 be used to apply a coating material over the freshly printed

1 sheets. In U.S. Patent 4,841,903 (Bird) there are disclosed
2 coating apparatus which can be selectively moved between the plate
3 cylinder or the blanket cylinder of the last printing unit of the
4 press so the last printing unit can only be used for coating
5 purposes. However, when coating apparatus of these types are
6 being used, the last printing unit cannot be used to print ink to
7 the sheets, but rather can only be used for the coating operation.
8 Thus, while coating with this type of in-line coating apparatus,
9 the printing press loses the capability of printing on the last
10 printing unit as it is converted to a coating unit.

11 The coater of U.S. Patent 5,107,790 (Sliker et al) is
12 retractable along an inclined rail for extending and retracting a
13 coater head into engagement with a blanket on the blanket
14 cylinder. Because of its size, the rail-retractable coater can
15 only be installed between the last printing unit of the press and
16 the delivery sheet stacker, and cannot be used for interunit
17 coating. The coater of U.S. Patent 4,615,293 (Jahn) provides two
18 separate, independent coaters located on the dampener side of a
19 converted printing unit for applying lacquer to a plate and to a
20 rubber blanket. Consequently, although a plate and blanket are
21 provided, the coating unit of Jahn's press is restricted to a
22 dedicated coating operation only.

23 Proposals have been made for overcoming the loss of a
24 printing unit when in-line coating is used, for example as set
25 forth in U.S. Patent 5,176,077 to Howard W. DeMoore (co-inventor
26 and assignee), which discloses a coating apparatus having an
27 applicator roller positioned to apply the coating material to the
28 freshly printed sheet while the sheet is still on the last
29 impression cylinder of the press. This allows the last printing
30 unit to print and coat simultaneously, so that no loss of printing
31 unit capability results.

32 Some conventional coaters are rail-mounted and occupy a
33 large amount of press space and reduce access to the press.
34 Elaborate equipment is needed for retracting such coaters from the

1 operative coating position to the inoperative position, which
2 reduces access to the printing unit.

3 Accordingly, there is a need for an in-line ink-
4 ing/coating apparatus which does not result in the loss of a
5 printing unit, does not extend the length of the press, and which
6 can print and coat aqueous and flexographic inks and coating
7 materials simultaneously onto the plate and blanket on any litho-
8 graphic printing unit of any lithographic printing press,
9 including the first printing unit.

10 Objects of the Invention

11 Accordingly, a general object of the present invention
12 is to provide improved inking/coating apparatus which is capable
13 of selectively applying ink or coating material to a plate on a
14 plate cylinder or ink or coating material to a plate or blanket on
15 a blanket cylinder.

16 A specific object of the present invention is to provide
17 improved inking/coating apparatus of the character described which
18 is extendable into inking/coating engagement with either a plate
19 on a plate cylinder or to a plate or blanket on a blanket
20 cylinder.

21 A related object of the present invention is to provide
22 improved inking/coating apparatus of the character described which
23 is capable of being mounted on any lithographic printing unit of
24 the press and does not interfere with operator access to the plate
25 cylinder, blanket cylinder, or adjacent printing units.

26 Another object of the present invention is to provide
27 improved inking/coating apparatus of the character described,
28 which can be moved from an operative inking/coating engagement
29 position adjacent to a plate cylinder or a blanket cylinder to a
30 non-operative, retracted position.

31 Still another object of the present invention is to
32 provide improved inking/coating apparatus of the character
33 described, which can be used for applying aqueous, flexographic
34 and ultra-violet curable inks and/or coatings in combination with

1 lithographic, flexographic and waterless printing processes on any
2 rotary offset printing press.

3 A related object of the present invention is to provide
4 improved inking/coating apparatus of the character described,
5 which is capable of applying aqueous or flexographic ink or
6 coating material on one printing unit, for example the first
7 printing unit, and drying the ink or coating material before it is
8 printed or coated on the next printing unit so that it can be
9 overprinted or overcoated immediately on the next printing unit
10 with waterless, aqueous, flexographic or lithographic inks or
11 coating materials.

12 Yet another object of the present invention is to
13 provide improved inking/coating apparatus for use on a multiple
14 color rotary offset printing press that can apply ink or coating
15 material separately and/or simultaneously to the plate and/or
16 blanket of a printing unit of the press from a single operative
17 position, and from a single inking/coating apparatus.

18 A related object of the present invention is to provide
19 improved inking/coating apparatus of the character described, in
20 which virtually no printing unit adjustment or alteration is
21 required when the inking/coating apparatus is converted from plate
22 to blanket printing or coating and vice versa.

23 Another object of the present invention is to provide
24 improved inking/coating apparatus that can be operably mounted in
25 the dampener space of any lithographic printing unit for ink-
26 ing/coating engagement with either a plate on a plate cylinder or
27 a plate or blanket on a blanket cylinder, and which does not
28 interfere with operator movement or activities in the interunit
29 space between printing units.

30 Summary of the Invention

31 The foregoing objects are achieved by a retractable, in-
32 line inking/coating apparatus which is mounted on the dampener
33 side of any printing unit of a rotary offset press for movement
34 between an operative (on-impression) inking/coating position and

1 a retracted, disengaged (off-impression) position. The ink-
2 ing/coating apparatus includes an applicator roller which is
3 movable into and out of engagement with a plate on a plate
4 cylinder or a blanket on a blanket cylinder. The inking/coating
5 applicator head is pivotally coupled to a printing unit by pivot
6 pins which are mounted on the press side frames in the traditional
7 dampener space of the printing unit in parallel alignment with the
8 plate cylinder and the blanket cylinder. This dampener space
9 mounting arrangement allows the inking/coating unit to be
10 installed between any adjacent printing units on the press.

11 In the preferred embodiment, the applicator head
12 includes vertically spaced pairs of cradle members with one cradle
13 pair being adapted for supporting an inking/coating applicator
14 roller in alignment with a plate cylinder, and the other cradle
15 pair supporting an inking/coating applicator roller in alignment
16 with the blanket cylinder, respectively, when the applicator head
17 is in the operative position. Because of the pivotal support
18 provided by the pivot pins, the applicator head can be extended
19 and retracted within the limited space available in the tradition-
20 al dampener space, without restricting operator access to the
21 printing unit cylinders and without causing a printing unit to
22 lose its printing capability.

23 When the inking/coating apparatus is used in combination
24 with a flexographic printing plate and aqueous or flexographic ink
25 or coating material, the water component of the aqueous or
26 flexographic ink or coating material on the freshly printed or
27 coated sheet is evaporated and dried by a high velocity, hot air
28 interunit dryer and a high volume heat and moisture extractor
29 assembly so that the freshly printed ink or coating material is
30 dry before the sheet is printed or coated on the next printing
31 unit. This quick drying process permits a base layer or film of
32 ink, for example opaque white or metallic (gold, silver or other
33 metallics) ink to be printed on the first printing unit, and then
34 overprinted on the next printing unit without back-trapping or dot
35 gain.

1 The construction and operation of the present invention
2 will be understood from the following detailed description taken
3 in conjunction with the accompanying drawings which disclose, by
4 way of example, the principles and advantages of the present
5 invention.

6 Brief Description of the Drawings

7 FIGURE 1 is a perspective view of a sheet fed, rotary
8 offset printing press having inking/coating apparatus embodying
9 the present invention;

10 FIGURE 2 is a simplified perspective view of the single
11 head, dual cradle inking/coating apparatus of the present
12 invention;

13 FIGURE 3 is a schematic side elevational view of the
14 printing press of Figure 1 having single head, dual cradle ink-
15 ing/coating apparatus installed in the traditional dampener
16 position of the first, second and last printing units;

17 FIGURE 4 is a simplified side elevational view showing
18 the single head, dual cradle inking/coating apparatus in the
19 operative inking/coating position for simultaneously printing on
20 the printing plate and blanket on the fourth printing unit;

21 FIGURE 5 is a simplified side elevational view showing
22 the single head, dual cradle inking/coating apparatus in the
23 operative position for spot or overall inking or coating on the
24 blanket of the first printing unit, and showing the dual cradle
25 inking/coating apparatus in the operative position for spot or
26 overall inking or coating on the printing plate of the second
27 printing unit;

28 FIGURE 6 is a simplified side elevational view of the
29 single head, dual cradle inking/coating apparatus of FIGURE 4 and
30 FIGURE 5, partially broken away, showing the single head, dual
31 cradle inking/coating apparatus in the operative coating position
32 and having a sealed doctor blade reservoir assembly for spot or
33 overall coating on the blanket;

1 FIGURE 7 is a schematic view showing a heat exchanger
2 and pump assembly connected to the single head, dual cradle
3 inking/coating apparatus for circulating temperature controlled
4 ink or coating material to the inking/coating apparatus;
5 FIGURE 8 is a side elevational view, partially broken
6 away, and similar to FIGURE 6 which illustrates an alternative
7 coating head arrangement;
8 FIGURE 9 is a simplified elevational view of a printing
9 unit which illustrates pivotal coupling of the inking/coating
10 apparatus on the printing unit side frame members;
11 FIGURE 10 is a view similar to FIGURE 2 in which a pair
12 of split applicator rollers are mounted in the upper cradle and
13 lower cradle, respectively;
14 FIGURE 11 is a side elevational view of a split applica-
15 tor roller;
16 FIGURE 12 is a perspective view of a doctor blade
17 reservoir which is centrally partitioned by a seal element;
18 FIGURE 13 is a sectional view showing sealing engagement
19 of the split applicator roller against the partition seal element
20 of FIGURE 12;
21 FIGURE 14 is a view similar to FIGURE 8 which illus-
22 trates an alternative inking/coating embodiment;
23 FIGURE 15 is a simplified side elevational view of a
24 substrate which has a bronzed-like finish which is applied by
25 simultaneous operation of the dual applicator roller embodiment of
26 FIGURE 14;
27 FIGURE 16 is a side elevational view, partly in section,
28 of a pan roller having separate transfer surfaces mounted on a
29 split fountain pan;
30 FIGURE 17 is a simplified side elevational view of the
31 dual cradle inking/coating apparatus, partially broken away, which
32 illustrates an alternative inking/coating head apparatus featuring
33 a single doctor blade assembly, anilox applicator roller mounted
34 on the lower cradle; and

1 FIGURE 18 is a side elevational view, partly in section,
2 of a single doctor blade anilox applicator roller assembly having
3 separate transfer surfaces, and a split fountain pan having
4 separate fountain compartments, with the separate fountain
5 compartments being supplied with different inks or coating
6 materials from separate off-press sources.

7 Detailed Description of the Preferred Embodiments

8 As used herein, the term "processed" refers to printing
9 and coating methods which can be applied to either side of a
10 substrate, including the application of lithographic, waterless,
11 UV-curable, aqueous and flexographic inks and/or coatings. The
12 term "substrate" refers to sheet and web material. Also, as used
13 herein, the term "waterless printing plate" refers to a printing
14 plate having image areas and non-image areas which are oleophilic
15 and oleophobic, respectively. "Waterless printing ink" refers to
16 an oil-based ink which does not contain a significant aqueous
17 component. "Flexographic plate" refers to a flexible printing
18 plate having a relief surface which is wettable by flexographic
19 ink or coating material. "Flexographic printing ink or coating
20 material" refers to an ink or coating material having a base
21 constituent of either water, solvent or UV-curable liquid. "UV-
22 curable lithographic printing ink and coating material" refers to
23 oil-based printing inks and coating materials that can be cured
24 (dried) photomechanically by exposure to ultraviolet radiation,
25 and that have a semi-paste or gel-like consistency. "Aqueous
26 printing ink or coating material" refers to an ink or coating
27 material that predominantly contains water as a solvent, diluent
28 or vehicle. A "relief plate" refers to a printing plate having
29 image areas which are raised relative to non-image areas which are
30 recessed.

31 As shown in the exemplary drawings, the present
32 invention is embodied in a new and improved in-line inking/coating
33 apparatus, herein generally designated 10, for applying aqueous,
34 flexographic or UV-curable inks or protective and/or decorative

the last impression cylinder 36 to a delivery conveyor system, generally designated 44, which transfers the freshly printed sheet to the sheet delivery stacker 20. To prevent smearing during transfer, a flexible covering is mounted on the delivery cylinder 42, as described and claimed in U.S. Patent 4,402,267 to Howard W. DeMoore, which is incorporated herein by reference. The flexible covering is manufactured and sold by Printing Research, Inc. of Dallas, Texas, U.S.A., under its trademark SUPER BLUE®. Optionally, a vacuum-assisted sheet transfer assembly manufactured and sold by Printing Research, Inc. of Dallas, Texas, U.S.A., under its trademark BACVAC® can be substituted for the delivery transfer cylinder 42 and flexible covering.

The delivery conveyor system 44 as shown in FIGURE 2 is of conventional design and includes a pair of endless delivery gripper chains 46, only one of which is shown carrying at regular spaced locations along the chains, laterally disposed gripper bars having gripper fingers used to grip the leading edge of a freshly printed or coated sheet 18 after it leaves the nip between the impression cylinder 36 and delivery cylinder 42 of the last printing unit 28. As the leading edge is gripped by the gripper fingers, the delivery chains 46 pull the sheet away from the last impression cylinder 36 and convey the freshly printed or coated sheet to the sheet delivery stacker 20.

Prior to reaching the delivery sheet stacker, the freshly printed and/or coated sheets S pass under a delivery dryer 48 which includes a combination of infra-red thermal radiation, high velocity hot air flow and a high performance heat and moisture extractor for drying the ink and/or the protective/decorative coating. Preferably, the delivery dryer 48, including the high performance heat and moisture extractor is constructed as described in U.S. Application Serial Number 08/116,711, filed September 3, 1993, entitled "Infra-Red Forced Air Dryer and Extractor" by Howard C. Secor, Ronald M. Rendleman and Paul D. Copenhaver, commonly assigned to the assignee of the present invention, Howard W. DeMoore, and licensed to Printing

1 Research, Inc. of Dallas, Texas, U.S.A., which manufactures and
2 markets the delivery dryer 48 under its trademark AIR BLANKET™.

3 In the exemplary embodiment shown in FIGURE 3, the first
4 printing unit 22 has a flexographic printing plate PF mounted on
5 the plate cylinder, and therefore neither an inking roller train
6 nor a dampening system is required. A flexographic printing plate
7 PF is also mounted on the plate cylinder of the second printing
8 unit 24. The form rollers of the inking roller train 52 shown
9 mounted on the second printing unit 24 are retracted and locked
10 off to prevent plate contact. Flexographic ink is supplied to the
11 flexographic plate PF of the second printing unit 24 by the ink-
12 ing/coating apparatus 10.

13 A suitable flexographic printing plate PF is offered by
14 E.I. du Pont de Nemours of Wilmington, Delaware, U.S.A., under its
15 trademark CYREL®. Another source is BASF Aktiengesellschaft of
16 Ludwigshafen, Germany, which offers a suitable flexographic
17 printing plate under its trademark NYLOFLEX®.

18 The third printing unit 26 as illustrated in FIGURE 3
19 and FIGURE 4 is equipped for lithographic printing and includes an
20 inking apparatus 50 having an inking roller train 52 arranged to
21 transfer ink Q from an ink fountain 54 to a lithographic plate P
22 mounted on the plate cylinder 32. This is accomplished by a
23 fountain roller 56 and a ductor roller 57. The fountain roller 56
24 projects into the ink fountain 54, whereupon its surface picks up
25 ink. The lithographic printing ink Q is transferred from the
26 fountain roller 56 to the inking roller train 52 by the ductor
27 roller 57. The inking roller train 52 supplies ink Q to the image
28 areas of the lithographic printing plate P.

29 The lithographic printing ink Q is transferred from the
30 lithographic printing plate P to an ink receptive blanket B which
31 is mounted on the blanket cylinder 34. The inked image carried on
32 the blanket B is transferred to a substrate S as the substrate is
33 transferred through the nip between the blanket cylinder 34 and
34 the impression cylinder 36.

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1 The inking roller arrangement 52 illustrated in FIGURE
2 3 and FIGURE 4 is exemplary for use in combination with litho-
3 graphic ink printing plates P. It is understood that a dampening
4 system 58 having a dampening fluid reservoir DF is coupled to the
5 inking roller train 52 (FIGURE 4), but is not required for water-
6 less or flexographic printing.

7 The plate cylinder 32 of printing unit 28 is equipped
8 with a waterless printing plate PW. Waterless printing plates are
9 also referred to as dry planographic printing plates and are
10 disclosed in the following U.S. patents: 3,910,187; Re. 30,670;
11 4,086,093; and 4,853,313. Suitable waterless printing plates can
12 be obtained from Toray Industries, Inc. of Tokyo, Japan. A
13 dampening system is not used for waterless printing, and waterless
14 (oil-based) printing ink is used. The waterless printing plate PW
15 has image areas and non-image areas which are oleophilic/hydro-
16 philic and oleophobic/hydrophobic, respectively. The waterless
17 printing plate PW is engraved or etched, with the image areas
18 being recessed with respect to the non-image areas. The image
19 area of the waterless printing plate PW is rolled-up with the
20 flexographic or aqueous printing ink which is transferred by the
21 applicator roller 66. Both aqueous and oil-based inks and
22 coatings are repelled from the non-image areas, and are retained
23 in the image areas. The printing ink or coating is then trans-
24 ferred from the image areas to an ink or coating receptive blanket
25 B and is printed or coated onto a substrate S.

26 For some printing jobs, a flexographic plate PF or a
27 waterless printing plate PW is mounted over a resilient packing
28 such as the blanket B on the blanket cylinder 34, for example as
29 indicated by phantom lines in printing unit 22 of FIGURE 5. An
30 advantage of this alternative embodiment is that the waterless
31 plate PW or the flexographic plate PF are resiliently supported
32 over the blanket cylinder by the underlying blanket B or other
33 resilient packing. The radial deflection and give of the
34 resilient blanket B provides uniform, positive engagement between

1 the applicator roller 66 and a flexographic plate or waterless
2 plate.

3 In that arrangement, a plate is not mounted on the plate
4 cylinder 32; instead, a waterless plate PW is mounted on the
5 blanket cylinder, and the inked image on the waterless printing
6 plate is not offset but is instead transferred directly from the
7 waterless printing plate PW to the substrate S. The water
8 component of flexographic ink on the freshly printed sheet is
9 evaporated by high velocity, hot air dryers and high volume heat
10 and moisture extractors so that the freshly printed aqueous or
11 flexographic ink is dried before the substrate is printed on the
12 next printing unit.

13 Referring now to FIGURE 2, FIGURE 3 and FIGURE 9, the
14 inking/coating apparatus 10 is pivotally mounted on the side
15 frames 14, 15 for rotation about an axis X. The inking/coating
16 apparatus 10 includes a frame 60, a hydraulic motor 62, a lower
17 gear train 64, an upper gear train 65, an applicator roller 66, a
18 sealed doctor blade assembly 68 (FIGURE 6), and a drip pan DP, all
19 mounted on the frame 60. The external peripheral surface of the
20 applicator roller 66 is wetted by contact with liquid coating
21 material or ink contained in a reservoir 70.

22 The hydraulic motor 62 drives the applicator roller 66
23 synchronously with the plate cylinder 32 and the blanket cylinder
24 34 in response to an RPM control signal from the press drive (not
25 illustrated) and a feedback signal developed by a tachometer 72.
26 While a hydraulic drive motor is preferred, other drive means such
27 as an electric drive motor or an equivalent can be used.

28 When using waterless printing plate systems, the
29 temperature of the waterless printing ink and of the waterless
30 printing plate must be closely controlled for good image reproduc-
31 tion. For example, for waterless offset printing with TORAY
32 waterless printing plates PW, it is absolutely necessary to
33 control the waterless printing plate surface and waterless ink
34 temperature to a very narrow range, for example 24°C (75°F) to
35 27°C (80°F).

1 Referring to FIGURE 7, the reservoir 70 is supplied with
2 ink or coating which is temperature controlled by a heat exchanger
3 71. The temperature controlled ink or coating material is
4 circulated by a positive displacement pump, for example a
5 peristaltic pump, through the reservoir 70 and heat exchanger 71
6 from a source 73 through a supply conduit 75 and a return conduit
7 77. The heat exchanger 71 cools or heats the ink or coating
8 material and maintains the ink or coating and the printing plate
9 within the desired narrow temperature range.

10 According to one aspect of the present invention,
11 aqueous/flexographic ink or coating material is supplied to the
12 applicator roller 66, which transfers the aqueous/flexographic ink
13 or coating material to the printing plate (FIGURE 7), which may be
14 a waterless printing plate or a flexographic printing plate. When
15 the inking/coating apparatus is used for applying aque-
16 ous/flexographic ink or coating material to a waterless printing
17 plate PW, the inking roller train 52 is not required, and is
18 retracted away from the printing plate. Because the viscosity of
19 aqueous/flexographic printing ink or coating material varies with
20 temperature, it is necessary to heat or cool the aque-
21 ous/flexographic printing ink or coating material to compensate
22 for ambient temperature variations to maintain the ink viscosity
23 in a preferred operating range.

24 For example, the temperature of the printing press can
25 vary from around 60°F (15°C) in the morning, to around 85°F (29°C)
26 or more in the afternoon. The viscosity of aqueous/flexographic
27 printing ink or coating material can be marginally high when the
28 ambient temperature of the press is near 60°F (15°C), and the
29 viscosity can be marginally low when the ambient temperature of
30 the press exceeds 85°F (29°C). Consequently, it is desirable to
31 control the temperature of the aqueous/flexographic printing ink
32 or coating material so that it will maintain the surface tempera-
33 ture of waterless printing plates within the specified temperature
34 range. Moreover, the ink/coating material temperature should be
35 controlled to maintain the tack of the aqueous/flexographic

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1 printing ink or coating material within a desired range when the
2 ink or coating material is being used in connection with flexo-
3 graphic printing processes.

4 The applicator roller 66 is preferably an anilox fluid
5 metering roller which transfers measured amounts of printing ink
6 or coating material to a plate or blanket. The surface of an
7 anilox roller is engraved with an array of closely spaced, shallow
8 depressions referred as "cells". Ink or coating from the
9 reservoir 70 flows into the cells as the anilox roller turns
10 through the reservoir. The transfer surface of the anilox roller
11 is "doctored" (wiped or scraped) by dual doctor blades 68A, 68B to
12 remove excess ink or coating material. The ink or coating metered
13 by the anilox roller is that contained within the cells. The dual
14 doctor blades 68A, 68B also seal the supply reservoir 70.

15 The anilox applicator roller 66 is cylindrical and may
16 be constructed in various diameters and lengths, containing cells
17 of various sizes and shapes. The volumetric capacity of an anilox
18 roller is determined by cell size, shape and number of cells per
19 unit area. Depending upon the intended application, the cell
20 pattern may be fine (many small cells per unit area) or coarse
21 (fewer large cells per unit area).

22 By supplying the ink or coating material through the
23 inking/coating apparatus 10, more ink or coating material can be
24 applied to the sheet S as compared with the inking roller train of
25 a lithographic printing unit. Moreover, color intensity is
26 stronger and more brilliant because the aqueous or flexographic
27 ink or coating material is applied at a much heavier film
28 thickness or weight than can be applied by the lithographic
29 process, and the aqueous or flexographic colors are not diluted by
30 dampening solution.

31 Preferably, the sealed doctor blade assembly 68 is con-
32 structed as described in U.S. Patent 5,176,077 to Howard W.
33 DeMoore, co-inventor and assignee, which is incorporated herein by
34 reference. An advantage of using a sealed reservoir is that fast
35 drying ink or coating material can be used. Fast drying ink or

1 coating material can be used in an open fountain 53 (see FIGURE
2 8); however, open air exposure causes the water and solvents in
3 the fast-drying ink or coating material to evaporate faster, thus
4 causing the ink or coating material to dry prematurely and change
5 viscosity. Moreover, an open fountain emits unwanted odors into
6 the press room. When the sealed doctor blade assembly is
7 utilized, the pump (FIGURE 7) which circulates ink or coating
8 material to the doctor blade head is preferably a peristaltic
9 pump, which does not inject air into the feeder lines which supply
10 the ink or coating reservoir 70 and helps to prevent the formation
11 of air bubbles and foam within the ink or coating material.

12 An inking/coating apparatus 10 having an alternative
13 applicator roller arrangement is illustrated in FIGURES 10-13. In
14 this arrangement, the engraved metering surface of the anilox
15 applicator rollers 66, 67 are partitioned by smooth seal surfaces
16 66C which separates a first engraved peripheral surface portion
17 66A from a second engraved peripheral surface portion 66B.
18 Likewise, smooth seal surfaces 66D, 66E are formed on the opposite
19 end portions of the applicator roller 66 for engaging end seals
20 134, 136 (FIGURE 12) of the doctor blade reservoir. The upper
21 applicator roller 67 has engraved anilox metering surfaces 67A and
22 67B which are separated by a smooth seal band 67C.

23 Referring now to FIGURE 12 and FIGURE 13, the reservoir
24 70 of the doctor blade head 68 is partitioned by a curved seal
25 element 130 to form two separate chambers 70A, 70B. The seal
26 element 130 is secured to the doctor blade head within an annular
27 groove 132. The seal element 130 is preferably made of polyur-
28 ethane foam or other durable, resilient foam material. The seal
29 element 130 is engaged by the seal band 66, thus forming a rotary
30 seal which blocks the leakage of ink or coating material from one
31 reservoir chamber into the other reservoir chamber. Moreover, the
32 seal band provides an unprinted or uncoated area which separates
33 the printed or coated areas from each other, which is needed for
34 work and turn printing jobs or other printing jobs which print two
35 or more separate images onto the same substrate.

1 Another advantage of the split applicator roller
2 embodiment is that it enables two or more flexographic inks or
3 coating materials to be printed simultaneously within the same
4 lithographic printing unit. That is, the reservoir chambers 70A,
5 70B of the upper doctor blade assembly can be supplied with gold
6 ink and silver ink, for example, while the reservoir chambers 70A,
7 70B of the lower doctor blade assembly can be supplied with inks
8 of two additional colors, for example opaque white ink and blue
9 ink. This permits the opaque white ink to be overprinted with the
10 gold ink, and the blue ink to be overprinted with the silver ink
11 on the same printing unit on any lithographic press.

12 Moreover, a catalyst can be used in the upper doctor
13 blade reservoir and a reactive ink or coating material can be used
14 in the lower doctor blade reservoir. This can provide various
15 effects, for example improved chemical resistance and higher gloss
16 levels.

17 The split applicator roller sections 67A, 67B in the
18 upper cradle position can be used for applying two separate inks
19 or coating materials simultaneously, for example flexographic,
20 aqueous and ultra-violet curable inks or coating materials, to
21 separate surface areas of the plate, while the lower applicator
22 roller sections 66A, 66B can apply an initiator layer and a micro-
23 encapsulated layer simultaneously to separate blanket surface
24 areas. Optionally, the metering surface portions 66A, 66B can be
25 provided with different cell metering capacities for providing
26 different printing effects which are being printed simultaneously.
27 For example, the screen line count on one half-section of an
28 anilox applicator roller is preferably in the range of 200-600
29 lines per inch (79-236 lines per cm) for half-tone images, and the
30 screen line count of the other half-section is preferably in the
31 range of 100-300 lines per inch (39-118 lines per cm) for overall
32 coverage, high weight applications such as opaque white. This
33 split arrangement in combination with dual applicator rollers is
34 particularly advantageous when used in connection with "work and
35 turn" printing jobs.

1 Referring again to FIGURE 8, instead of using the sealed
2 doctor blade reservoir assembly 68 as shown in FIGURE 6, an open
3 fountain assembly 69 is provided by the fountain pan 53 which
4 contains a volume of liquid ink Q or coating material. The liquid
5 ink or coating material is transferred to the applicator roller 66
6 by a pan roller 55 which turns in contact with ink Q or coating
7 material in the fountain pan. If a split applicator roller is
8 used, the pan roller 55 is also split, and the pan is divided into
9 two pan sections 53A, 53B by a separator plate 53P, as shown in
10 FIGURE 16.

11 In the alternative embodiment of FIGURE 16, the pan
12 roller 55 is divided into two pan roller sections 55A, 55B by a
13 centrally located, annular groove 59. The separator plate 53P is
14 received within and centrally aligned with the groove 59, but does
15 not touch the adjoining roller faces. By this arrangement, two or
16 more inks or coating materials Q1, Q2 are contained within the
17 open pan sections 55A, 55B for transfer by the split pan roller
18 sections 53A, 53B, respectively. This permits two or more
19 flexographic inks or coating materials to be transferred to two
20 separate image areas on the plate or on the blanket of the same
21 printing unit. This arrangement is particularly advantageous for
22 work and turn printing jobs or other printing jobs which print two
23 or more separate images onto the same substrate.

24 The frame 60 of the inking/coating apparatus 10 includes
25 side support members 74, 76 which support the applicator roller
26 66, gear train 64, gear train 65, doctor blade assembly 68 and the
27 drive motor 62. The applicator roller 66 is mounted on stub
28 shafts 63A, 63B which are supported at opposite ends on a lower
29 cradle assembly 100 formed by a pair of side support members 78,
30 80 which have sockets 79, 81 and retainer caps 101, 103. The stub
31 shafts are received in roller bearings 105, 107 which permit free
32 rotation of the applicator roller 66 about its longitudinal axis
33 A1 (axis A2 in the upper cradle). The retainer caps 101, 103 hold
34 the stub shafts 63A, 63B and bearings 105, 107 in the sockets 79,

1 81 and hold the applicator roller 66 in parallel alignment with
2 the pivot axis X.

3 The side support members 74, 76 also have an upper
4 cradle assembly 102 formed by a pair of side support members 82,
5 84 which are vertically spaced with respect to the lower side
6 plates 78, 80. Each cradle 100, 102 has a pair of sockets 79, 81
7 and 83, 85, respectively, for holding an applicator roller 66, 67
8 for spot coating or inking engagement with the printing plate P on
9 the plate cylinder 32 (FIGURE 4) or with a printing plate P or a
10 blanket B on the blanket cylinder 34.

11 Preferably, the applicator roller 67 (FIGURE 8, FIGURE
12 9) the upper cradle (plate) position is an anilox roller having a
13 resilient transfer surface. In the dual cradle arrangement as
14 shown in FIGURE 2, the press operator can quickly change from
15 blanket inking/coating to plate inking/coating within minutes,
16 since it is only necessary to release, remove and reposition or
17 replace the applicator roller 66.

18 The capability to simultaneously print in the flexo-
19 graphic mode, the aqueous mode, the waterless mode, or the litho-
20 graphic mode on different printing units of the same lithographic
21 press and to print or coat from either the plate position or the
22 blanket position on any one of the printing units is referred to
23 herein as the LITHOFLEX™ printing process or system. LITHOFLEX™
24 is a trademark of Printing Research, Inc. of Dallas, Texas,
25 U.S.A., exclusive licensee of the present invention.

26 Referring now to FIGURE 14, an inking/coating apparatus
27 10 having an inking/coating assembly 109 of an alternative design
28 is installed in the upper cradle position for applying ink and/or
29 coating material to a plate P on the plate cylinder 32. According
30 to this alternative embodiment, an applicator roller 67R having a
31 resilient transfer surface is coupled to an anilox fluid metering
32 roller which transfers measured amounts of printing ink or coating
33 material to the plate P. The anilox roller 111 has a transfer
34 surface constructed of metal, ceramic or composite material which
35 is engraved with cells. The resilient applicator roller 67R is

1 interposed in transfer engagement with the plate P and the
2 metering surface of the anilox roller 111. The resilient transfer
3 surface of the applicator roller 67R provides uniform, positive
4 engagement with the plate.

5 Referring now to FIGURE 17, an inking/coating apparatus
6 10 having an alternative inking/coating assembly 113 is installed
7 in the lower cradle assembly 100 for applying flexographic or
8 aqueous ink and/or coating material Q to a plate or blanket
9 mounted on the blanket cylinder 34. Instead of using the sealed,
10 dual doctor blade reservoir assembly 68 as shown in FIGURE 6, an
11 open, single doctor blade anilox roller assembly 113 is supplied
12 with liquid ink Q or coating material contained in an open
13 fountain pan 117. The liquid ink or coating material Q is
14 transferred to the engraved transfer surface of the anilox roller
15 66 as it turns in the fountain pan 117. Excess ink or coating
16 material Q is removed from the engraved transfer surface by a
17 single doctor blade 68B. The liquid ink or coating material Q is
18 pumped from an off-press source, for example the drum 73 shown in
19 FIGURE 17, through a supply conduit 119 into the fountain pan 117
20 by a pump 120.

21 For overall inking or coating jobs, the metering
22 transfer surface of the anilox roller 66 extends over its entire
23 peripheral surface. However, for certain printing jobs which
24 print two or more separate images onto the same substrate, for
25 example work and turn printing jobs, the metering transfer surface
26 of the anilox applicator roller 66 is partitioned by a centrally
27 located, annular undercut groove 66C which separates first and
28 second metering transfer surfaces 66A, 66B as shown in FIGURE 11
29 and FIGURE 18.

30 The single doctor blade 68B has an edge 68E which wipes
31 simultaneously against the split metering transfer surfaces 66A,
32 66B. In this single blade, split anilox roller embodiment 113, it
33 is necessary to provide dual supply sources, for example drums
34 73A, 73B, dual supply lines 119A, 119B, and dual pumps 120A, 120B.
35 Moreover, the fountain pan 117 is also split, and the pan 117 is

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1 divided into two pan sections 117A, 117B by a separator plate 121,
2 as shown in FIGURE 18. The separator plate 121 is centrally
3 aligned with the undercut groove 66C, but does not touch the
4 adjoining roller faces.

5 Although the single blade, split anilox applicator
6 roller assembly 113 is shown mounted in the lower cradle position
7 (FIGURE 17), it should be understood that the single blade, split
8 anilox applicator roller assembly 113 can be mounted and used in
9 the upper cradle position, as well.

10 According to another aspect of the present invention,
11 the inking/coating apparatus 10 is pivotally coupled on horizontal
12 pivot pins 88P, 90P which allows the single head, dual cradle ink-
13 ing/coating apparatus 10 to be mounted on any lithographic
14 printing unit. Referring to FIGURE 9, the horizontal pivot pins
15 88P, 90P are mounted within the traditional dampener space 29 of
16 the printing unit and are secured to the press side frames 14, 15,
17 respectively. Preferably, the pivot support pins 88P, 90P are
18 secured to the press side frames by a threaded fastener. The
19 pivot support pins are received within circular openings 88, 90
20 which intersect the side support members 74, 76 of the ink-
21 ing/coating apparatus 10. The horizontal support pins 88P, 90P
22 are disposed in parallel alignment with rotational axis X and with
23 the plate cylinder and blanket cylinder, and are in longitudinal
24 alignment with each other.

25 Preferably, the pivot pins 88P, 90P are located in the
26 dampener space 29 so that the rotational axes A1, A2 of the
27 applicator rollers 66, 67 are elevated with respect to the nip
28 contact points N1, N2. By that arrangement, the transfer point
29 between the applicator roller 66 and a blanket on the blanket
30 cylinder 34 (as shown in FIGURE 8) and the transfer point between
31 the applicator roller 66 and a plate on the plate cylinder 32 (as
32 shown in FIGURE 5) are above the radius lines R1, R2 of the plate
33 cylinder and the blanket cylinder, respectively. This permits the
34 inking/coating apparatus 10 to move clockwise to retract the
35 applicator roller 66 to an off-impression position relative to the

1 (off-impression) position to the operative (on-impression)
2 position.

3 Although the dampener side installation is preferred,
4 the inking/coating apparatus 10 can be adapted for operation on
5 the delivery side of the printing unit, with the inking/coating
6 apparatus being movable from a retracted (off-impression) position
7 to an on-impression position for engagement of the applicator
8 roller with either a plate on the plate cylinder or a blanket on
9 the blanket cylinder on the delivery side 25 of the printing unit.

10 Movement of the inking/coating apparatus 10 to the
11 operative (on-impression) position is produced by power actuators,
12 preferably double acting pneumatic cylinders 104, 106 which have
13 extendable/retractable power transfer arms 104A, 106A, respective-
14 ly. The first pneumatic cylinder 104 is pivotally coupled to the
15 press frame 14 by a pivot pin 108, and the second pneumatic
16 cylinder 106 is pivotally coupled to the press frame 15 by a pivot
17 pin 110. In response to selective actuation of the pneumatic
18 cylinders 104, 106, the power transfer arms 104A, 106A are
19 extended or retracted. The power transfer arm 104A is pivotally
20 coupled to the side support member 74 by a pivot pin 112.
21 Likewise, the power transfer arm 106A is pivotally coupled to the
22 side support member 76 by a pivot pin 114.

23 As the power arms extend, the inking/coating apparatus
24 10 is rotated clockwise on the pivot pins 88P, 90P, thus moving
25 the applicator roller 66 to the off-impression position. As the
26 power arms retract, the inking/coater apparatus 60 is rotated
27 counterclockwise on the pivot pins 88P, 90P, thus moving the
28 applicator roller 66 to the on-impression position. The torque
29 applied by the pneumatic actuators is transmitted to the ink-
30 ing/coating apparatus 10 through the pivot pin 112 and pivot pin
31 114.

32 Fine adjustment of the on-impression position of the
33 applicator roller relative to the plate cylinder or the blanket
34 cylinder, and of the pressure of roller engagement, is provided by
35 an adjustable stop assembly 115. The adjustable stop assembly 115

1 has a threaded bolt 116 which is engagable with a bell crank 118.
2 The bell crank 118 is pivotally coupled to the side support member
3 74 on a pin 120. One end of the bell crank 118 is engagable by
4 the threaded bolt 116, and a cam roller 122 is mounted for
5 rotation on its opposite end. The striking point of engagement is
6 adjusted by rotation of the bolt 116 so that the applicator roller
7 66 is properly positioned for inking/coating engagement with the
8 plate P or blanket B and provides the desired amount of ink-
9 ing/coating pressure when the inking/coating assembly 60 is moved
10 to the operative position.

11 This arrangement permits the in-line inking/coating
12 apparatus to operate effectively without encroaching in the
13 interunit space between any adjacent printing units, and without
14 blocking or obstructing access to the cylinders of the printing
15 units when the inking/coating apparatus is in the extended (off-
16 impression) position or retracted (on-impression) position.
17 Moreover, when the in-line inking/coating apparatus is in the
18 retracted position, the doctor blade reservoir and coating
19 circulation lines can be drained and flushed automatically while
20 the printing press is running as well as when the press has been
21 stopped for change-over from one job to another or from one type
22 of ink or coating to another.

23 Substrates which are printed or coated with aqueous
24 flexographic printing inks require high velocity hot air for
25 drying. When printing a flexographic ink such as opaque white or
26 metallic gold, it is always necessary to dry the printed sub-
27 strates between printing units before overprinting them.
28 According to the present invention, the water component on the
29 surface of the freshly printed or coated substrate S is evaporated
30 and dried by high velocity, hot air interunit dryer and high
31 volume heat and moisture extractor units 124, 126 and 128, as
32 shown in FIGURE 2, FIGURE 4 and FIGURE 5. The dryer/extractor
33 units 124, 126 and 128 are oriented to direct high velocity heated
34 air onto the freshly printed/coated substrates as they are
35 transferred by the impression cylinder 36 and the intermediate

transfer drum 40 of one printing unit and to another transfer cylinder 30 and to the impression cylinder 36 of the next printing unit. By that arrangement, the freshly printed flexographic ink or coating material is dried before the substrate S is overprinted by the next printing unit.

The high velocity, hot air dryer and high performance heat and moisture extractor units 124, 126 and 128 utilize high velocity air jets which scrub and break-up the moist air layer which clings to the surface of each freshly printed or coated sheet or web. Within each dryer, high velocity air is heated as it flows across a resistance heating element within an air delivery baffle tube. High velocity jets of hot air are discharged through multiple airflow apertures into an exposure zone Z (FIGURE 4 and FIGURE 5) and onto the freshly printed/coated sheet S as it is transferred by the impression cylinder 36 and transfer drum 40, respectively.

Each dryer assembly includes a pair of air delivery dryer heads 124D, 126D and 128D which are arranged in spaced, side-by-side relationship. The high velocity, hot air dryer and high performance heat and moisture extractor units 124, 126 and 128 are preferably constructed as disclosed in co-pending U.S. Patent Application Serial No. 08/132,584, filed October 6, 1993, entitled "High Velocity Hot Air Dryer", to Howard W. DeMoore, co-inventor and assignee of the present invention, and which is incorporated herein by reference, and which is marketed by Printing Research, Inc. of Dallas, Texas, U.S.A., under its trademark SUPER BLUE HV™.

The hot moisture-laden air displaced from the surface of each printed or coated sheet is extracted from the dryer exposure zone Z and exhausted from the printing unit by the high volume extractors 124, 126 and 128. Each extractor head includes an extractor manifold 124E, 126E and 128E coupled to the dryer heads 124D, 126D and 128D and draws the moisture, volatiles, odors and hot air through a longitudinal air gap G between the dryer heads. Best results are obtained when extraction is performed simulta-

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1 neously with drying. Preferably, an extractor is closely coupled
2 to the exposure zone Z at each dryer location as shown in FIGURE
3 4. Extractor heads 124E, 126E and 128E are mounted on the dryer
4 heads 124D, 126D and 128D, respectively, with the longitudinal
5 extractor air gap G facing directly into the exposure zone Z.
6 According to this arrangement, each printed or coated sheet is
7 dried before it is printed on the next printing unit.

8 The aqueous water-based inks used in flexographic
9 printing evaporate at a relatively moderate temperature provided
10 by the interunit high velocity hot air dryers/extractors 124, 126
11 and 128. Sharpness and print quality are substantially improved
12 since the flexographic ink or coating material is dried before it
13 is overprinted on the next printing unit. Since the freshly
14 printed flexographic ink is dry, dot gain is substantially reduced
15 and back-trapping on the blanket of the next printing unit is
16 virtually eliminated. This interunit drying/extracting arrange-
17 ment makes it possible to print flexographic inks such as metallic
18 ink and opaque white ink on the first printing unit, and then dry-
19 trap and overprint on the second and subsequent printing units.

20 Moreover, this arrangement permits the first printing
21 unit 22 to be used as a coater in which a flexographic, aqueous or
22 UV-curable coating material is applied to the lowest grade
23 substrate such as recycled paper, cardboard, plastic and the like,
24 to trap and seal-in lint, dust, spray powder and other debris and
25 provide a smoother, more durable printing surface which can be
26 overprinted on the next printing unit.

27 A first down (primer) aqueous coating layer seals-in the
28 surface of a low grade, rough substrate, for example, re-cycled
29 paper or plastic, and improves overprinted dot definition and
30 provides better ink lay-down while preventing strike-through and
31 show-through. A flexographic UV-curable coating material can then
32 be applied downstream over the primer coating, thus producing
33 higher coating gloss.

34 Preferably, the applicator roller 66 is constructed of
35 composite carbon fiber material, metal or ceramic coated metal

1 when it is used for applying ink or coating material to the
2 blanket B or other resilient material on the blanket cylinder 34.
3 When the applicator roller 66 is applied to the plate, it is
4 preferably constructed as an anilox roller having a resilient,
5 compressible transfer surface. Suitable resilient roller surface
6 materials include Buna N synthetic rubber and EPDM (terpolymer
7 elastomer).

8 It has been demonstrated in prototype testing that the
9 inking/coating apparatus 10 can apply a wide range of ink and
10 coating types, including fluorescent (Day Glo), pearlescent,
11 metallics (gold, silver and other metals), glitter, scratch and
12 sniff (micro-encapsulated fragrance), scratch and reveal,
13 luminous, pressure-sensitive adhesives and the like, as well as
14 UV-curable and aqueous coatings.

15 With the dampener assembly removed from the printing
16 unit, the inking/coating apparatus 10 can easily be installed in
17 the dampener space for selectively applying flexographic inks
18 and/or coatings to a flexographic or waterless printing plate or
19 to the blanket. Moreover, overprinting of the flexographic inks
20 and coatings can be performed on the next printing unit since the
21 flexographic inks and/or coatings are dried by the high velocity,
22 hot air interunit dryer and high volume heat and moisture
23 extractor assembly of the present invention.

24 The flexographic inks and coatings as used in the
25 present invention contain colored pigments and/or soluble dyes,
26 binders which fix the pigments onto the surface of the substrate,
27 waxes, defoamers, thickeners and solvents. Aqueous printing inks
28 predominantly contain water as a diluent and/or vehicle. The
29 thickeners which are preferred include algonates, starch,
30 cellulose and its derivatives, for example cellulose esters or
31 cellulose ethers and the like. Coloring agents including organic
32 as well as inorganic pigments may be derived from dyes which are
33 insoluble in water and solvents. Suitable binders include
34 acrylates and/or polyvinylchloride.

1 When metallic inks are printed, the cells of the anilox
2 roller must be appropriately sized to prevent the metal particles
3 from getting stuck within the cells. For example, for metallic
4 gold ink, the anilox roller should have a screen line count in the
5 range of 175-300 lines per inch (68-118 lines per cm). Prefera-
6 bly, in order to keep the anilox roller cells clear, the doctor
7 blade assembly 68 is equipped with a bristle brush BR (FIGURE 14)
8 as set forth in U.S. Patent 5,425,809 to Steven M. Person,
9 assigned to Howard W. DeMoore, and licensed to Printing Research,
10 Inc. of Dallas, Texas, U.S.A., which is incorporated herein by
11 reference.

12 The inking/coating apparatus 10 can also apply UV-
13 curable inks and coatings. If UV-curable inks and coatings are
14 utilized, ultra-violet dryers/extractors are installed adjacent to
15 the high velocity hot air dryer/extractor units 124, 126 and 128,
16 respectively.

17 It will be appreciated that the LITHOFLEX™ printing
18 process described herein makes it possible to selectively operate
19 a printing unit of a press in the lithographic printing mode while
20 simultaneously operating another printing unit of the same press
21 in either the flexographic printing mode or in the waterless
22 printing mode, while also providing the capability to print or
23 coat, separately or simultaneously, from either the plate position
24 or the blanket position. The dual cradle support arrangement of
25 the present invention makes it possible to quickly change over
26 from inking/coating on the blanket cylinder position to ink-
27 ing/coating on the plate cylinder position with minimum press
28 down-time, since it is only necessary to remove and reposition or
29 replace the applicator roller 66 while the inking/coating
30 apparatus 10 is in the retracted position. It is only necessary
31 to remove four cap screws, lift the applicator roller 66 from the
32 cradle, and reposition it in the other cradle. All of this can be
33 accomplished in a few minutes, without removing the inking/coating
34 apparatus 10 from the press.

1 materials must be compatible for good transfer during the double
2 bump. Moreover, the inking/coating apparatus 10 can be used for
3 supplying ink or coating material to the blanket cylinder of a
4 rotary offset web press, or to the blanket of a dedicated coating
5 unit.

6 According to conventional bronzing techniques, a
7 metallic (bronze) powder is applied off-line to previously printed
8 substrate which produces a grainy, textured finish or appearance.
9 The on-line application of bronze material by conventional flexo-
10 graphic or lithographic printing will only produce a smooth,
11 continuous appearance. However, a grainy, textured finish is
12 preferred for highest quality printing which, prior to the present
13 invention, could only be produced by off-line methods.

14 Referring now to FIGURE 14 and FIGURE 15, metallic ink
15 or coating material is applied on-line to the substrate S by
16 simultaneous operation of the upper and lower applicator rollers
17 67R, 66 to produce an uneven surface finish having a bronze-like
18 textured or grainy appearance. According to the simulated
19 bronzing method of the present invention, the flexographic bronze
20 ink is applied simultaneously to the plate and to the blanket by
21 the dual cradle inking/coating apparatus 10 as shown in FIGURE 14.
22 A resilient applicator roller 67R is mounted in the upper cradle
23 102, and an anilox applicator roller 66 is mounted on the lower
24 cradle 100. The rollers are supplied from separate doctor blade
25 reservoirs 70. The doctor blade reservoir 70 in the upper cradle
26 position supplies bronze ink or coating material having relatively
27 coarse, metallic particles 140 dispersed in aqueous or flexo-
28 graphic ink. The coarse particle ink or coating material is
29 applied to the plate P by the resilient applicator roller 67R in
30 the upper cradle position 102. At the same time, flexographic
31 and/or bronze ink or coating material having relatively fine,
32 metallic particles 142 is transferred to the blanket B by the
33 anilox roller 66 which is mounted on the lower cradle 100.

34 The metering surfaces of the upper and lower applicator
35 rollers have different cell sizes and volumetric capacities which

1 accommodate the coarse and fine metallic particles. For example,
2 the anilox roller 111 mounted in the upper cradle position 102
3 which transfers the coarse metallic particles 140 preferably has
4 a screen line count in the range of 100-300 lines per inch (39-118
5 lines per cm), and the metering surface of the anilox roller 66
6 mounted on the lower cradle 100 which transfers the relatively
7 fine metallic particles 142 preferably has a screen line count in
8 the range of 200-600 lines per inch (79-236 lines per cm).

9 After transfer from the plate to the blanket, the fine
10 metallic particles 142 form a layer over the coarse metallic
11 particles 140. As both bronze layers are offset onto the
12 substrate S, the layer of fine metallic particles 142 is printed
13 onto the substrate S with the top layer of coarse metallic
14 particles 140 providing a textured, grainy appearance. The fine
15 metallic particles 142 cover the substrate which would otherwise
16 be visible in the gaps between the coarse metallic particles 140.
17 The combination of the coarse particle layer over the fine
18 particle layer thus provides a textured, bronzed-like finish and
19 appearance.

20 Particulate materials other than metal can be used for
21 producing a textured finish. For example, coarse and fine
22 particles of metallized plastic (glitter), mica particles
23 (pearlescent) and the like, can be substituted for the metallic
24 particles for producing unlimited surface variations, appearances
25 and effects. All of the particulate material, including the
26 metallic particles, are preferably in solid, flat platelet form,
27 and have a size dimension suitable for application by an anilox
28 applicator roller. Other particulate or granular material, for
29 example stone grit having irregular form and size, can be used to
30 good advantage.

31 Solid metal particles in platelet form, which are good
32 reflectors of light, are preferred for producing the bronzed-like
33 appearance and effect. However, various textured finishes, which
34 could have light-reflective properties, can be produced by using
35 granular materials such as stone grit. Most commonly used metals

1 include copper, zinc and aluminum. Other ductile metals can be
2 used, if desired. Moreover, the coarse and fine particles need
3 not be made of the same particulate material. Various effects and
4 textured appearances can be produced by utilizing diverse
5 particulate materials for the coarse particles and the fine
6 particles, respectively. Further, either fine or coarse particle
7 ink or coating material can be printed from the upper cradle
8 position, and either fine or coarse particle ink or coating
9 material can be printed from the lower cradle position, depending
10 on the special or surface finish that is desired.

11 It will be appreciated that the last printing unit 28
12 can be configured for additional inking/coating capabilities which
13 include lithographic, waterless, aqueous and flexographic
14 processes. Various substrate surface effects (for example double
15 bump or triple bump inking/coating or bronzing) can be performed
16 on the last printing unit. For triple bump inking/coating, the
17 last printing unit 28 is equipped with an auxiliary in-line inking
18 or coating apparatus 97 as shown in FIGURE 3 and FIGURE 4. The
19 in-line inking or coating apparatus 97 allows the application of
20 yet another film of ink or a protective or decorative layer of
21 coating material over any freshly printed or coated surface
22 effects or special treatments, thereby producing a triple bump.
23 The triple bump is achieved by applying a third film of ink or
24 layer of coating material over the freshly printed or coated
25 double bump simultaneously while the substrate is on the impres-
26 sion cylinder of the last printing unit.

27 When the in-line inking/coating apparatus 97 is
28 installed, it is necessary to remove the SUPER BLUE® flexible
29 covering from the delivery cylinder 42, and it is also necessary
30 to modify or convert the delivery cylinder 42 for inking/coating
31 service by mounting a plate or blanket B on the delivery cylinder
32 42, as shown in FIGURE 3 and FIGURE 4. Packing material is placed
33 under the plate or blanket B, thereby packing the plate or blanket
34 B at the correct packed-to-print radial clearance so that ink or
35 coating material will be printed or coated onto the freshly

1 printed substrate S as it transfers through the nip between the
2 plate or blanket B on the converted delivery cylinder 42 and the
3 last impression cylinder 36. According to this arrangement, a
4 freshly printed or coated substrate is overprinted or overcoated
5 with a third film or layer of ink or coating material simulta-
6 neously while a second film or layer of ink or coating material is
7 being over-printed or over-coated on the last impression cylinder
8 36.

9 The auxiliary inking/coating apparatus 97 and the
10 converted or modified delivery cylinder 42 are mounted on the
11 delivery drive shaft 43. The inking/coating apparatus 97 includes
12 an applicator roller, preferably an anilox applicator roller 97A,
13 for supplying ink or coating material to a plate or blanket B on
14 the modified or converted delivery cylinder 42. The in-line
15 inking/coating apparatus 97 and the modified or converted delivery
16 cylinder 42 are preferably constructed as described in U.S. Patent
17 5,176,077 to Howard W. DeMoore (co-inventor and assignee), which
18 is hereby incorporated by reference. The in-line inking/coating
19 apparatus 97 is manufactured and sold by Printing Research, Inc.
20 of Dallas, Texas, U.S.A., under its trademark SUPER BLUE EZ
21 COATER™.

22 After the delivery cylinder 42 has been modified or
23 converted for inking/coating service, and because of the reduced
24 nip clearance imposed by the plate or blanket B, the modified
25 delivery cylinder 42 can no longer perform its original function
26 of guiding and transferring the freshly printed or coated
27 substrate. Instead, the modified or converted delivery cylinder
28 42 functions as a part of the inking/coating apparatus 97 by
29 printing or coating a third down film of ink or layer of coating
30 material onto the freshly printed or coated substrate as it is
31 simultaneously printed or coated on the last impression cylinder
32 36. Moreover, the mutual tack between the second down ink film or
33 coating layer and the third down ink film or coating layer causes
34 the overprinted or overcoated substrate to cling to the plate or

1 blanket, thus opposing or resisting separation of the substrate
2 from the plate or blanket.

3 To remedy this problem, a vacuum-assisted transfer
4 apparatus 99 is mounted adjacent the modified or converted
5 delivery cylinder 42 as shown in FIGURE 3 and FIGURE 4. Another
6 purpose of the vacuum-assisted transfer apparatus 99 is to
7 separate the freshly overprinted or overcoated triple bump
8 substrate from the plate or blanket B as the substrate transfers
9 through the nip. The vacuum-assisted transfer apparatus 99
0 produces a pressure differential across the freshly overprinted or
1 overcoated substrate as it transfers through the nip, thus
2 producing a separation force onto the substrate and providing a
3 clean separation from the plate or blanket B.

14 The vacuum-assisted transfer apparatus 99 is preferably
15 constructed as described in U.S. Patent Nos. 5,113,255; 5,127,329;
16 5,205,217; 5,228,391; 5,243,909; and 5,419,254, all to Howard W.
17 DeMoore, co-inventor, which are incorporated herein by reference.
18 The vacuum-assisted transfer apparatus 99 is manufactured and sold
19 by Printing Research, Inc. of Dallas, Texas, U.S.A. under its
20 trademark BACVAC™.

21 Although the present invention and its advantages have
22 been described in detail, it should be understood that various
23 changes, substitutions and alterations can be made herein without
24 departing from the spirit and scope of the present invention as
25 defined by the appended claims.

What is claimed is:

1 *Sub A 17* 1. In a printing press of the type having first and
2 second side frame members forming a printing unit on which a plate
3 cylinder, a blanket cylinder and an impression cylinder are
4 supported for rotation, the improvement comprising:

5 inking/coating apparatus movably coupled to the
6 printing unit for movement to an on-impression operative position
7 and to an off-impression retracted position; and,

8 the inking/coating apparatus including means for
9 applying ink or coating material to a plate mounted on the plate
10 cylinder, or to a plate or blanket mounted on the blanket
11 cylinder, either separately or simultaneously when the ink-
12 ing/coating apparatus is in the operative position.

1 2. The invention as set forth in claim 1, wherein the
2 inking/coating apparatus comprises:

3 a doctor blade assembly having a reservoir for
4 receiving ink or coating material;

5 an applicator roller coupled to the doctor blade
6 assembly in fluid communication with the reservoir, the applicator
7 roller being engagable with a printing plate on the plate cylinder
8 or with a blanket on the blanket cylinder when the inking/coating
9 apparatus is in the operative position.

1 3. The invention as set forth in claim 2, the
2 applicator roller comprising:

3 an anilox roller having a resilient transfer
4 surface.

1 4. The invention as set forth in claim 1, including:
2 first and second pivot pins mounted on the first
3 and second side frame members, respectively, said pivot pins
4 extending in alignment with the rotational axis of the plate and
5 blanket cylinders; and

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6 the ^{inking or coating}~~inking/coating~~ apparatus being pivotally
7 coupled for rotational movement on the pivot pins.

1 5. The invention as set forth in claim 1, further
2 comprising:

3 a power actuator pivotally coupled to the printing
4 unit, the power actuator having a power transfer arm which is
5 extendable and retractable; and,

6 apparatus coupled to the power transfer arm and to
7 the inking^{or}~~coating~~ apparatus for converting extension or retrac-
8 tion movement of the power transfer arm into pivotal movement of
9 the inking^{or}~~coating~~ apparatus relative to the plate and blanket
10 cylinders.

1 6. The invention as set forth in claim 5, in which the
2 movement converting apparatus comprises:

3 a bell crank plate having a first end portion
4 pivotally coupled to the inking^{or}~~coating~~ apparatus for engaging the
5 printing unit and having a second end portion for engaging a stop
6 member; and,

7 a stop member coupled to the inking^{or}~~coating~~
8 apparatus for engaging the second end portion of the bell crank
9 plate.

1 7. The invention as set forth in claim 1, the
2 inking/coating apparatus comprising:

3 an applicator head having first and second side
4 support members;

5 the ink^{or} coating applying means being mounted
6 between the first side support member and second side support
7 member and having a reservoir or fountain pan for receiving ink or
8 coating material;

9 cradle means mounted on the first and second side
10 support members, respectively;

11 applicator roller means including at least one
12 applicator roller mounted for rotation on the cradle means and
13 disposed for rolling contact with ink or coating material in the
14 reservoir or fountain pan, the applicator roller being engagable
15 with a printing plate on the plate cylinder or with a blanket on
16 the blanket cylinder in the operative position; and,
17 power transfer means coupled to the applicator
18 roller means for rotating the at least one applicator roller.

1 8. The invention as set forth in claim 7,
2 the at least one cradle means including first and
3 second cradles disposed on the first and second side support
4 members respectively; and,
5 the applicator roller being mounted for rotation on
6 one of the first and second cradles.

1 9. The invention as set forth in claim 7,
2 the cradle means including a first cradle assembly
3 disposed on the first and second side support members, respective-
4 ly, and a second cradle assembly disposed on the first and second
5 side support members, respectively;

6 the applicator roller means including a first
7 applicator roller mounted for rotation on the first cradle
8 assembly for applying ink or coating material to a plate mounted
9 on the plate cylinder when the inking^{or} coating apparatus is in the
10 operative position; and,

11 the applicator roller means including a second
12 applicator roller mounted for rotation on the second cradle
13 assembly for applying ink or coating material to a plate or a
14 blanket mounted on the blanket cylinder when the inking^{or} coating
15 apparatus is in the operative position.

1 10. The invention as set forth in claim 1, wherein the
2 printing unit having a dampener space, and the inking/coating
3 apparatus being disposed within the dampener space.

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3 a plate cylinder mounted on the printing unit
4 between the delivery side and the dampener side, and a printing
5 plate mounted on the plate cylinder;

6 a blanket cylinder having an ink or coating
7 receptive blanket disposed in ink or coating transfer engagement
8 with the plate for transferring ink or coating material from the
9 image surface areas of the printing plate to the ink or coating
10 receptive blanket;

11 an impression cylinder disposed adjacent the
12 blanket cylinder thereby forming a nip between the blanket and the
13 impression cylinder whereby the printing ink or coating material
14 is transferred from the blanket to a substrate as the substrate is
15 transferred through the nip;

16 support means mounted on the dampener side of the
17 printing unit; and,

18 inking/coating apparatus for applying ink or
19 coating material to the plate or to the blanket, the inking/
20 coating apparatus being movably coupled to the support means for
21 movement to an operative, on-impression position in which the
22 inking/coating apparatus is engagable with the plate or the
23 blanket, and for movement to an off-impression position in which
24 the inking/coating apparatus is retracted and disengaged from the
25 plate and blanket.

1 15. The invention as defined in claim 14, including:
2 a dryer mounted on the printing unit for discharg-
3 ing heated air onto a freshly printed or coated substrate before
4 the freshly printed or coated substrate is subsequently printed,
5 coated or otherwise processed.

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1 16. The invention as defined in claim ¹⁵14, wherein:
2 the dryer is mounted adjacent to the impression
3 cylinder for discharging heated air onto a freshly printed or
4 coated substrate while the substrate is in contact with the
5 impression cylinder.

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a 1 17. The invention as defined in claim ¹⁵14, comprising:
2 an extractor coupled to the dryer for extracting
3 hot air, moisture, odors and volatiles from an exposure zone
4 between the dryer and the freshly printed or coated substrate.

1 *Sub A47* 18. The invention as defined in claim 14, comprising:
2 a transfer cylinder disposed in an interunit
3 position on the press and coupled in sheet transfer relation with
4 the impression cylinder; and,
5 an interunit dryer disposed adjacent the transfer
6 cylinder for discharging heated air onto a freshly printed or
7 coated substrate after it has been transferred from the impression
8 cylinder and while it is in contact with the transfer cylinder.

1 19. A printing press as defined in claim 14, further
2 including:

3 a transfer drum coupled in substrate transfer
4 relation with the impression cylinder of a first printing unit and
5 in substrate transfer relation with the impression cylinder of a
6 second printing unit;

7 a first dryer mounted adjacent the impression
8 cylinder of the first printing unit for discharging heated air
9 onto a freshly printed or coated substrate while the substrate is
10 in contact with the impression cylinder of the first printing
11 unit;

12 a second dryer mounted adjacent the transfer drum
13 for discharging heated air onto a freshly printed or coated
14 substrate after it has been transferred from the impression
15 cylinder of the first printing unit and while it is in contact
16 with the transfer cylinder; and,

17 a third dryer disposed adjacent the impression
18 cylinder of the second printing unit for discharging heated air
19 onto a freshly printed or coated substrate after it has been
20 transferred from the transfer drum and while it is in contact with
21 the impression cylinder of the second printing unit.

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1 20. In a printing press of the type having first and
2 second side frame members providing support for a printing unit in
3 which a blanket cylinder is disposed between the delivery side and
4 the dampener side of the printing unit, the improvement compris-
5 ing:

6 support means mounted on the side frame members on
7 the dampener side of the printing unit;

8 inking/coating apparatus for applying ink or
9 coating material to a blanket mounted on the blanket cylinder when
10 the inking/coating apparatus is in the operative on-impression
11 position; and,

12 the inking/coating apparatus being pivotally
13 coupled to the support means for movement to the operative
14 position in which the inking/coating apparatus is supported
15 laterally adjacent to the blanket cylinder, and to an off-
16 impression position in which the inking/coating apparatus is
17 retracted away from the blanket cylinder.

Q 1 21. The invention as set forth in claim 20, wherein the
2 printing unit includes a plate cylinder and a plate mounted on the
3 plate cylinder, the inking^{or} coating apparatus including:

4 first cradle means for supporting an applicator
5 roller for engagement with the plate when the inking^{or} coating
6 apparatus is in the operative position; and,

7 second cradle means for supporting an applicator^{or}
8 roller for engagement with the blanket when the inking^{or} coating
9 apparatus is in the operative position.

1 22. The invention as set forth in claim 20, said
2 support means comprising:

3 first and second pivot means mounted on the first
4 and second side frame members, respectively.

1 23. The invention as set forth in claim 20, further
2 comprising:

a 3 a power actuator pivotally coupled to the ink-
4 ing^{or} coating apparatus, the power actuator having a power transfer
5 arm which is selectively extendable or retractable; and,
6 apparatus coupled to the power transfer arm and to
7 the inking/coating apparatus for converting extension or retrac-
8 tion movement of the power transfer arm into pivotal movement of
9 the inking/coating apparatus relative to the printing unit.

1 24. The invention as set forth in claim 20, further
2 comprising:

3 a bell crank plate having a first end portion
4 coupled to the inking^{or} coating apparatus and having a second end
5 portion for engaging a stop member; and,
6

a 7 a stop member secured to the inking^{or} coating
8 apparatus for engaging the second end portion of the bell crank
plate.

1 25. The invention as set forth in claim 1, wherein the
2 inking^{or} coating apparatus comprises:

3 an applicator roller having a resilient transfer
4 surface.

1 26. The invention as set forth in claim 25, wherein the
2 applicator roller is supported for engagement with a plate on the
3 plate cylinder in the operative position, the applicator roller
4 comprising an anilox roller having a resilient transfer surface.

1 27. A printing press as defined in any one of claims 1,
2 11, 14 or 20, including:

3 a supply container for containing a volume of
4 liquid ink or coating material;

a 5 circulation means coupled between the supply
6 ^{Container} ~~reservoir~~ and the inking^{or} coating apparatus for inducing the flow
7 of liquid ink or coating material from said supply container to
8 the inking^{or} coating apparatus and for returning liquid ink or

a 9 coating material from the inking^{or} coating apparatus to the supply
10 container; and,

11 heat exchanger means coupled to the circulation
12 means for maintaining the temperature of the liquid ink or coating
13 material within a predetermined temperature range.

a. 1 28. A printing press as set forth in any one of the
2 claims 1, 11, 14 or 20, wherein the inking^{or} coating apparatus
3 comprises:

4 a fountain pan for containing a volume of liquid
5 ink or coating material;

6 an applicator roller having a metering surface;
7 and,

8 a pan roller mounted for rotation in the fountain
9 pan and coupled to the applicator roller for transferring ink or
10 coating material from the fountain pan to the applicator roller.

1 29. A printing press as defined in any one of claims 1,
2 11, 14 or 20, characterized in that:

3 a resilient packing is mounted on the blanket
4 cylinder, and a printing plate is mounted on the resilient
5 packing.

1 30. A printing press as defined in any one of claims 1,
2 11, 14 or 20, wherein the means for applying ink or coating
3 material comprises:

4 first cradle means;

5 a first reservoir or fountain means mounted on the
6 first cradle means for containing ink or coating material;

7 a first applicator roller mounted for rotation on
8 the first cradle means and disposed for rolling contact with ink
9 or coating material in the first reservoir or fountain means, the
10 first applicator roller being engagable with a printing plate on
11 the plate cylinder;

12 second cradle means;

13 a second reservoir or fountain means mounted on the
14 second cradle means for receiving ink or coating material;
15 a second applicator roller mounted for rotation on
16 the second cradle means and disposed for rolling contact with ink
17 or coating material in the second reservoir or fountain means, the
18 second applicator roller being engagable with a plate or blanket
19 mounted on the blanket cylinder in the operative position.

1 Pub a 57 31. A printing press as defined in any one of claims 1,
2 11, 14 or 20, wherein the means for applying ink or coating
3 material comprises an applicator roller, and the inking/coating
4 apparatus is pivotally mounted on the printing unit in a position
5 in which the nip contact point between the applicator roller and
6 a blanket or plate is offset with respect to a radius line
7 projecting through the center of the plate cylinder or blanket
8 cylinder to the axis of rotation of the printing/coating unit.



"RETRACTABLE PRINTING/COATING UNIT OPERABLE ON THE PLATE
AND BLANKET CYLINDERS SIMULTANEOUSLY FROM THE DAMPENER
SIDE OF THE FIRST PRINTING UNIT OR ANY CONSECUTIVE
PRINTING UNIT OF ANY ROTARY OFFSET PRINTING PRESS"

Abstract of the Disclosure

1 A retractable in-line inking/coating apparatus can apply
2 either spot or overall inking/coating material to a plate and/or
3 a blanket on the first printing unit or on any consecutive
4 printing unit of any rotary offset printing press. The ink-
5 ing/coating apparatus is pivotally mounted within the conventional
6 dampener space of any lithographic printing unit. The aqueous
7 component of the flexographic printing ink or aqueous coating
8 material is evaporated and dried by high velocity, hot air dryers
9 and high performance heat and moisture extractors so that the
10 aqueous or flexographic ink or coating material on a freshly
11 printed or coated sheet is dry and can be dry-trapped on the next
12 printing unit. The inking/coating apparatus includes dual cradles
13 that support first and second applicator rollers so that the ink-
14 ing/coating apparatus can apply a double bump of aque-
15 ous/flexographic or UV-curable printing ink or coating material to
16 a plate on the plate cylinder, while simultaneously applying
17 aqueous, flexographic or UV-curable printing ink or coating
18 material to a plate or a blanket on the blanket cylinder, and
19 thereafter onto a sheet as the sheet is transferred through the
20 nip between the blanket cylinder and the impression cylinder. A
21 triple bump is printed or coated on the last printing unit with
22 the aid of an impression cylinder inking/coating unit.

* * * * *

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PATENT

JOINT
UTILITY

Attorney Docket
No. B6038A

DECLARATION AND POWER OF ATTORNEY

We, HOWARD W. DEMOORE, RONALD M. RENDLEMAN and JOHN W. BIRD, joint inventors herein, hereby declare that:

Our residence, post office address and citizenship are as stated below next to our names.

We believe that we are the original, first and joint inventors of the subject matter which is claimed and for which a patent is sought on the invention entitled

"RETRACTABLE PRINTING/COATING UNIT OPERABLE ON THE PLATE AND BLANKET CYLINDERS SIMULTANEOUSLY FROM THE DAMPENERSIDE OF THE FIRST PRINTING UNIT OR ANY CONSECUTIVE PRINTING UNIT OF ANY ROTARY OFFSET PRINTING PRESS",

the specification of which is attached hereto.

We hereby state that we have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to in this declaration.

We each individually acknowledge the duty to disclose to the U.S. Patent Office all information known to me that is material to the patentability of any claim in accordance with Title 37, Code of Federal Regulations, §1.56, and which is material to the examination of this application, namely, information where there is a substantial likelihood that a reasonable examiner would consider it important in deciding whether to allow the application to issue as a patent.

We hereby claim foreign priority benefits under Title 35, United States Code §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

<u>Country</u>	<u>Application No.</u>	<u>Filing Date</u> <u>(day, month, year)</u>
----------------	------------------------	---

- NONE -

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We hereby claim the benefit under Title 35, United States Code §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code §112, we acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations §1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

<u>U.S. Serial No.</u>	<u>U.S. Filing Date</u>	<u>Status</u>
08/435,798	May 4, 1995	Pending

We hereby appoint DENNIS T. GRIGGS, Registration No. 27,790, of the firm of AKIN, GUMP, STRAUSS, HAUER & FELD, L.L.P., our attorney to prosecute this application and to transact all business in the U.S. Patent and Trademark Office connected therewith. We request that all correspondence be addressed to:

Dennis T. Griggs
Akin, Gump, Strauss, Hauer & Feld, L.L.P.
1700 Pacific Avenue, Suite 4100
Dallas, Texas 75201-4618

Phone: 214/969-2747

We hereby declare that all statements made herein of our own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of this application or any patent issued thereon.

Full name of first joint Inventor: Howard W. DeMoore
Residence: Dallas, Texas
Citizenship: U.S.
Post Office Address: 10954 Shady Trail
Dallas, Texas 75220

Date:

9/11/95

Howard W. DeMoore
Howard W. DeMoore

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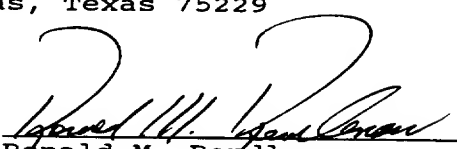
Full name of
second joint Inventor: Ronald M. Rendleman

Residence: Dallas, Texas TX

Citizenship: U.S.

Post Office Address: 4331 Royal Ridge
Dallas, Texas 75229

Date: 9-11-95


Ronald M. Rendleman

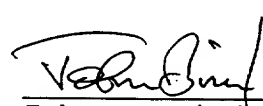
Full name of
third joint Inventor: John W. Bird

Residence: Carrollton, Texas TX

Citizenship: United Kingdom

Post Office Address: 1514 Iroquois Circle
Carrollton, Texas 75007

Date: 9-11-95.

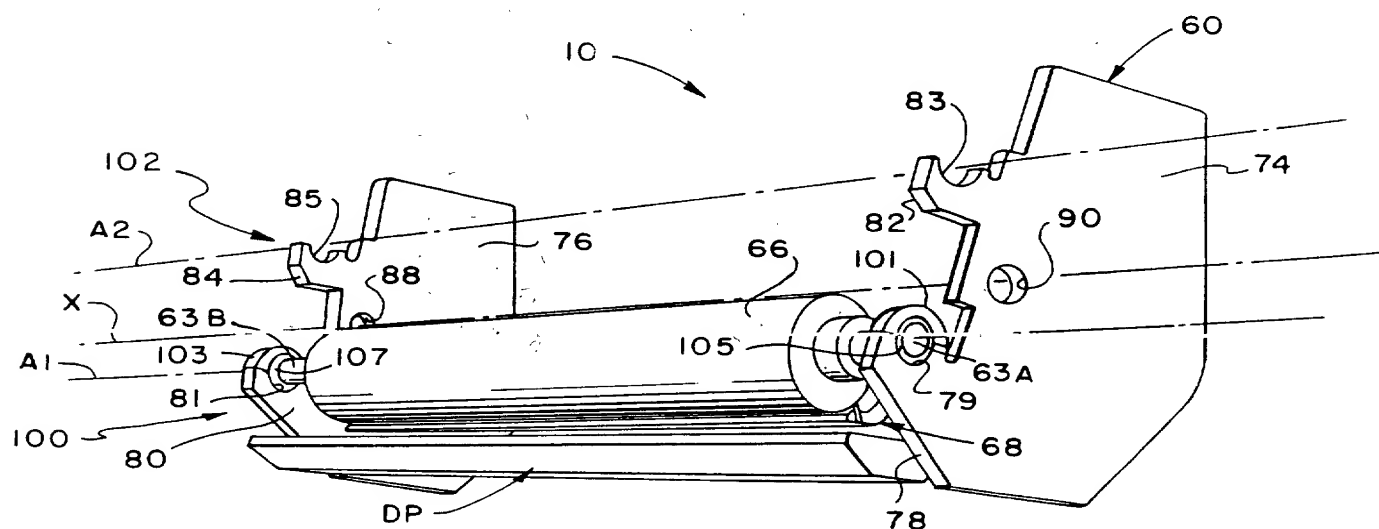
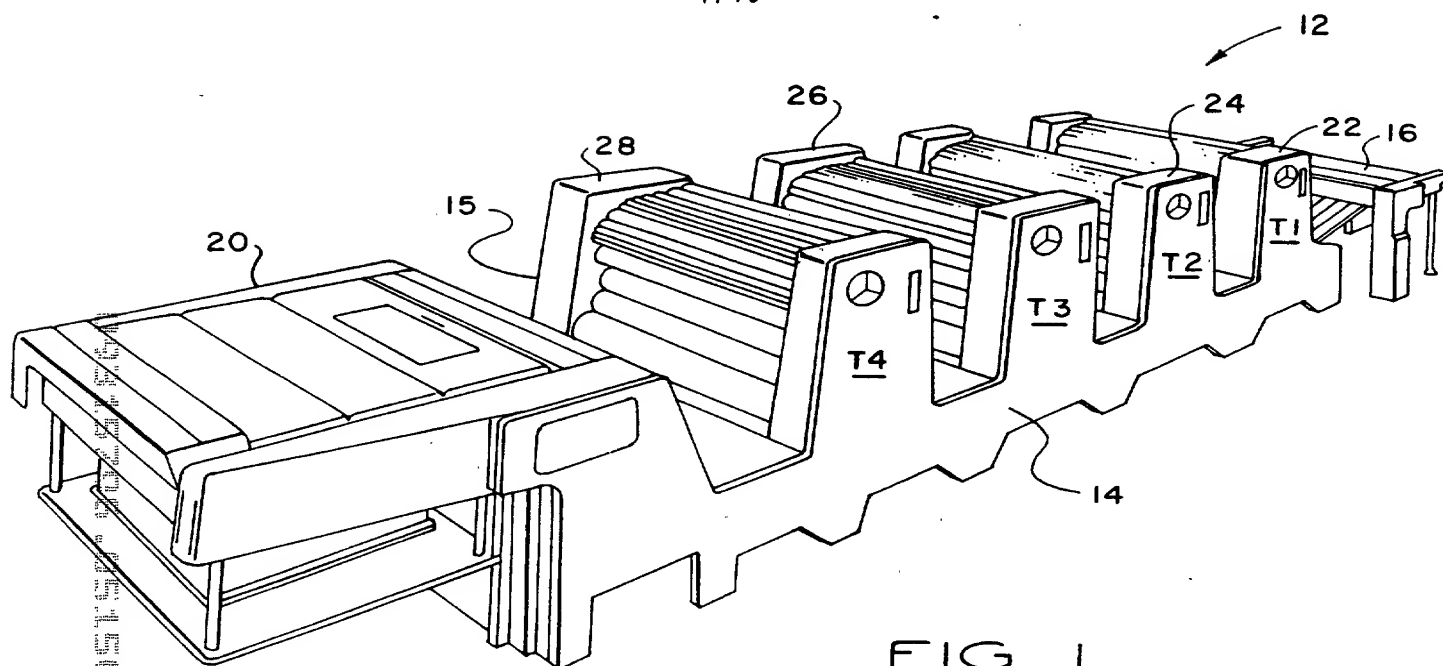

John W. Bird

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JOHN W. BIRD

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FIG. 3

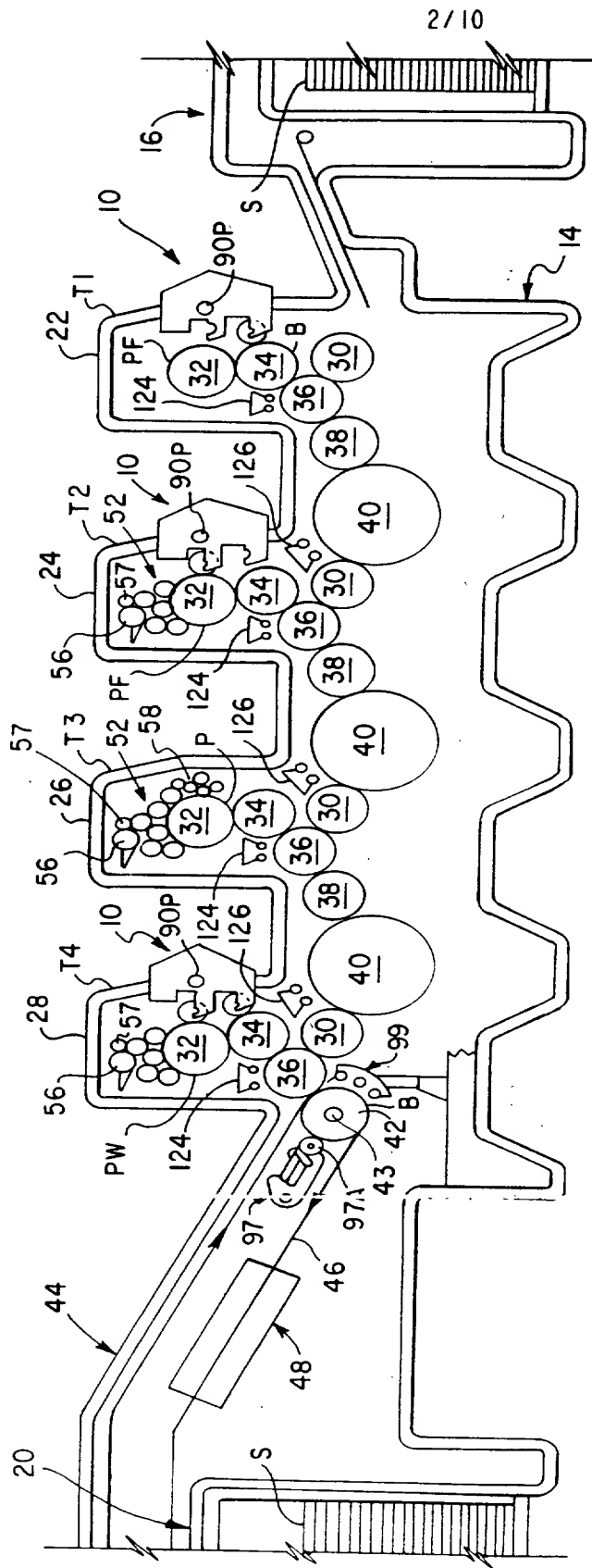


FIG. 3

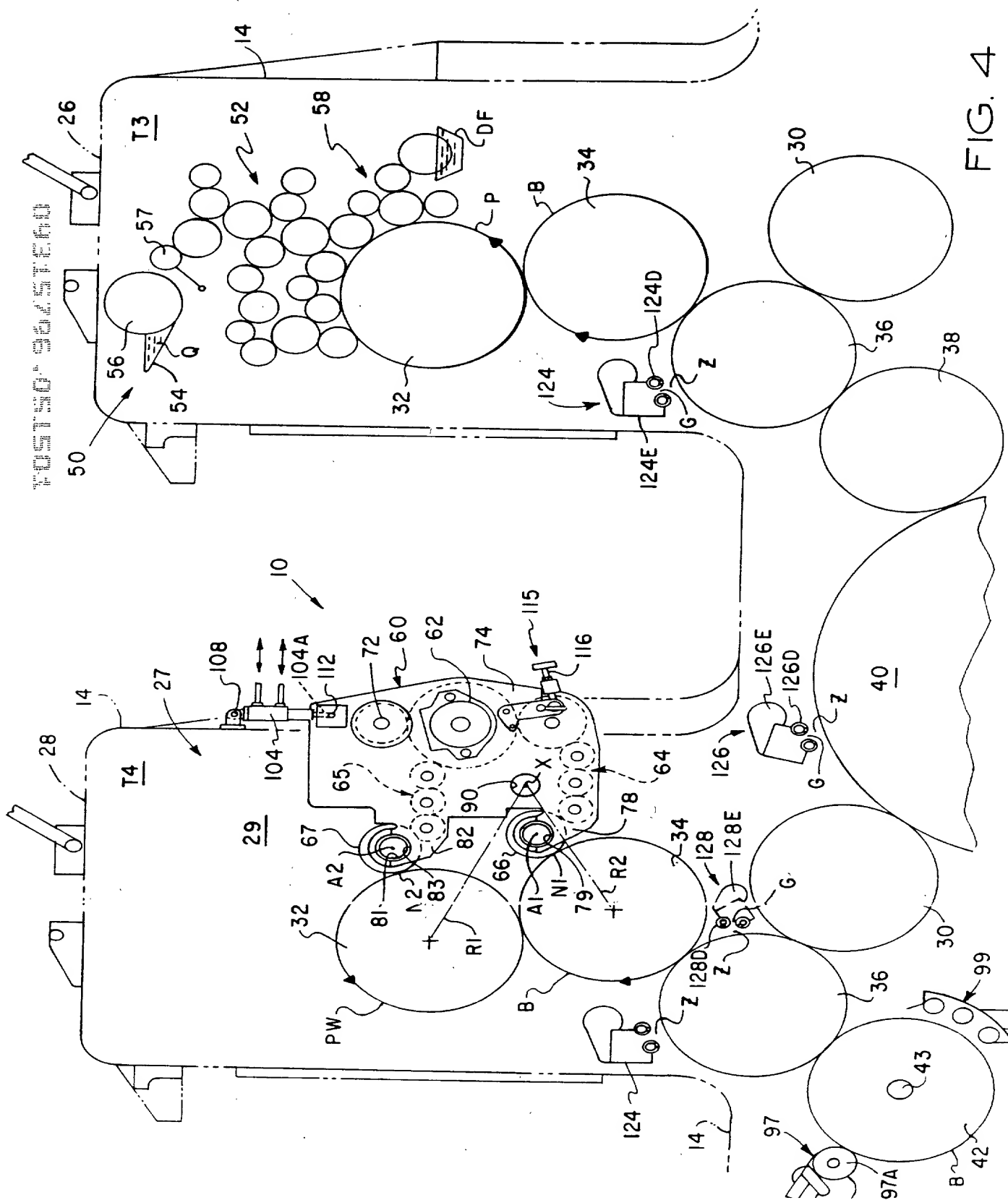
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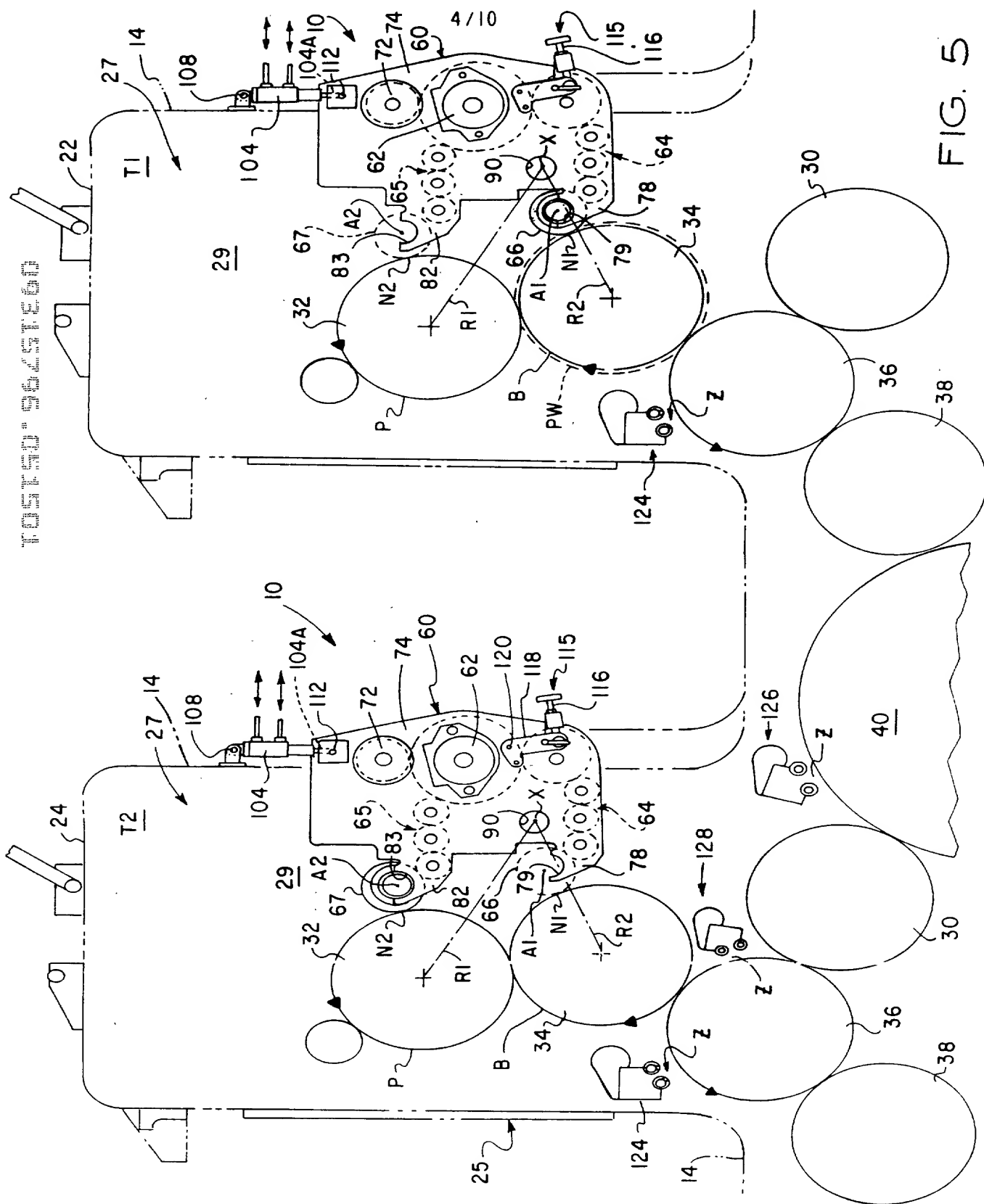
FIG. 4



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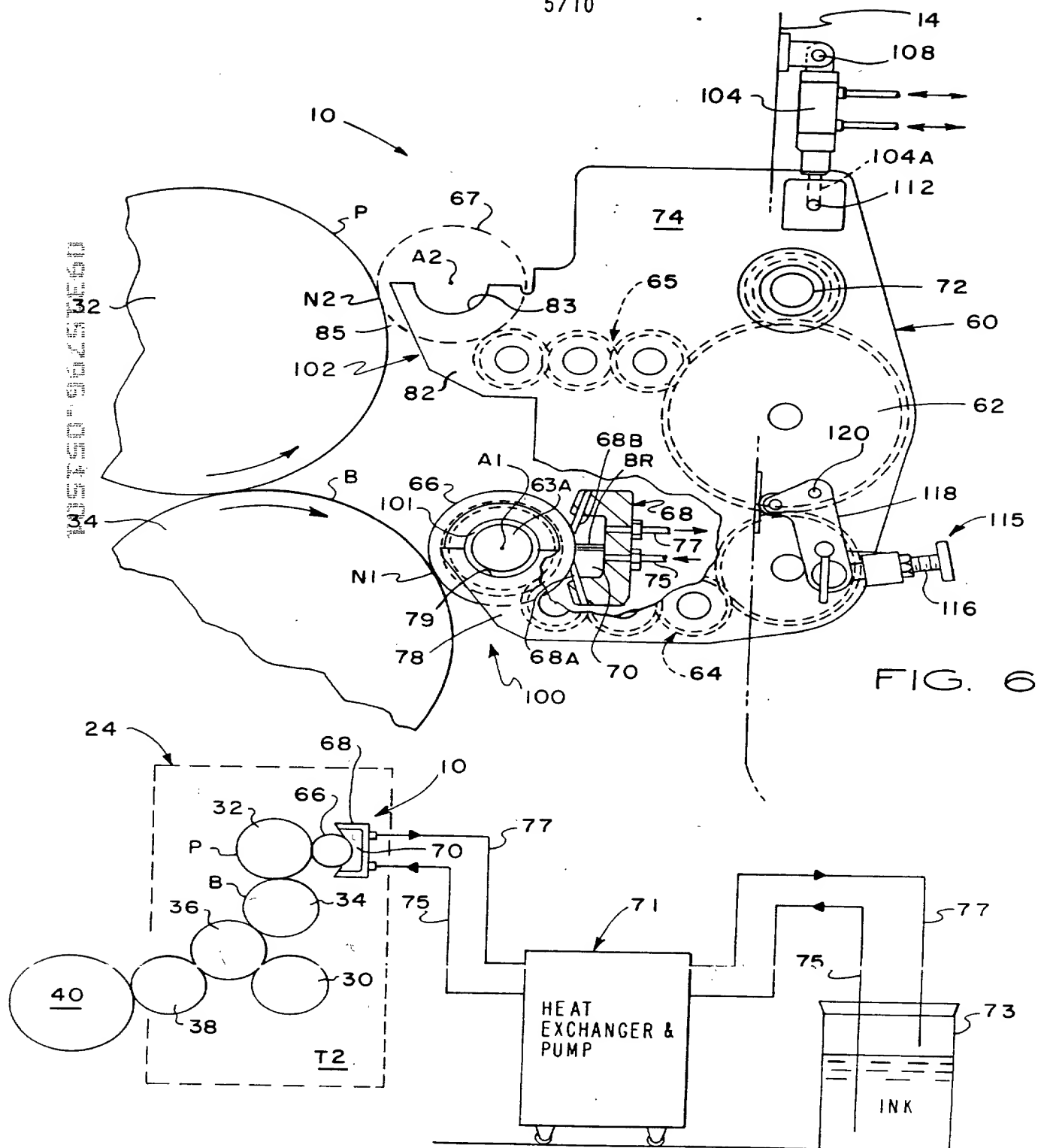


FIG. 7

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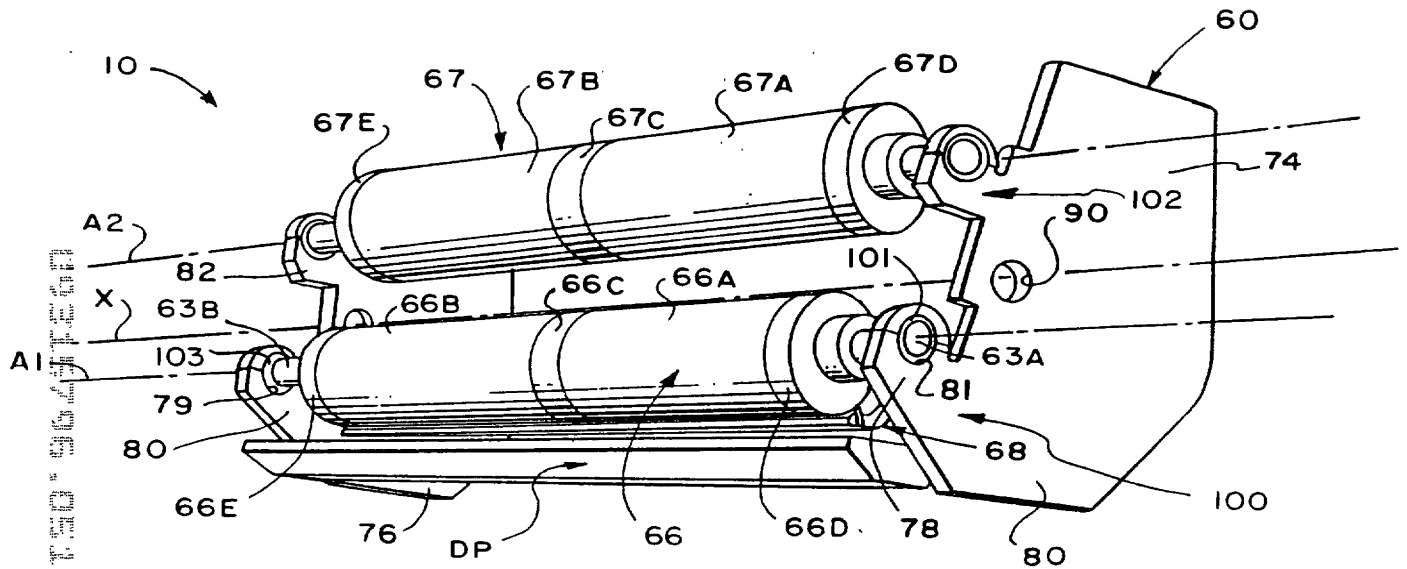


FIG. 10

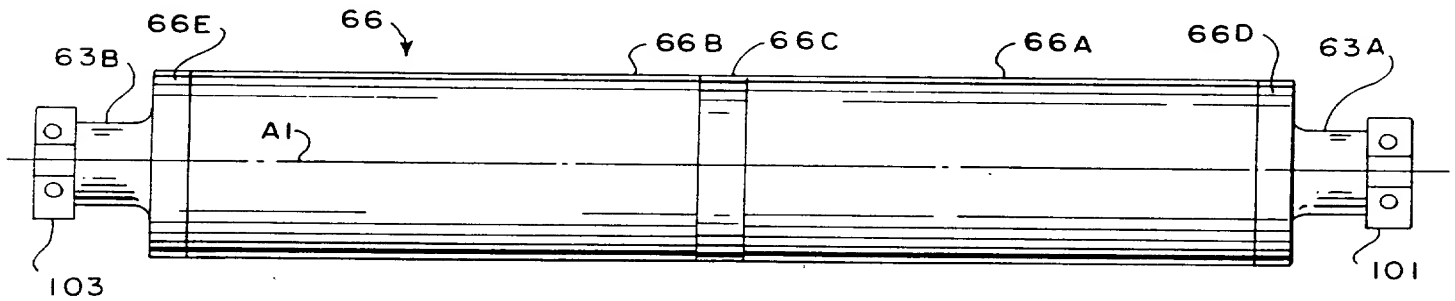


FIG. 11

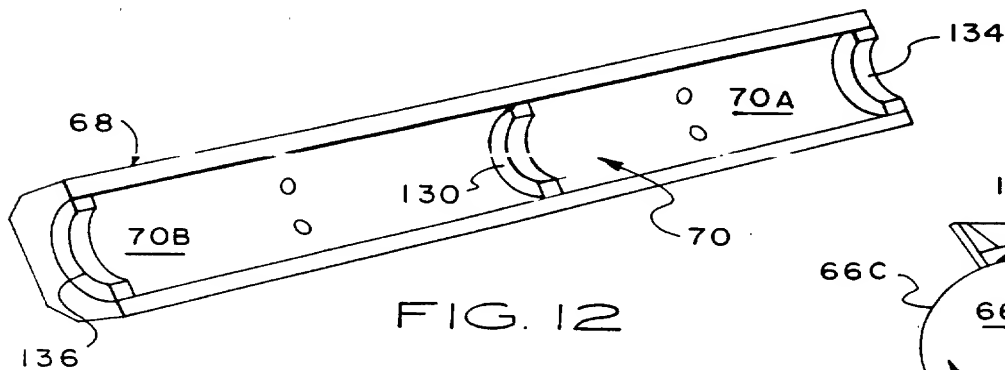


FIG. 12

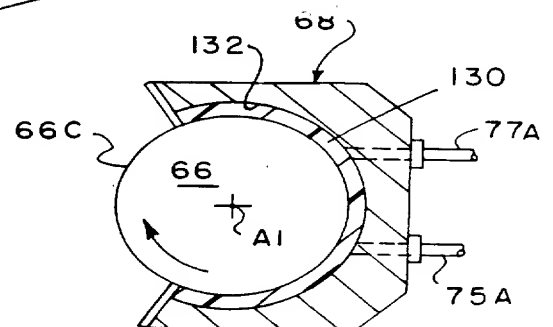


FIG. 13

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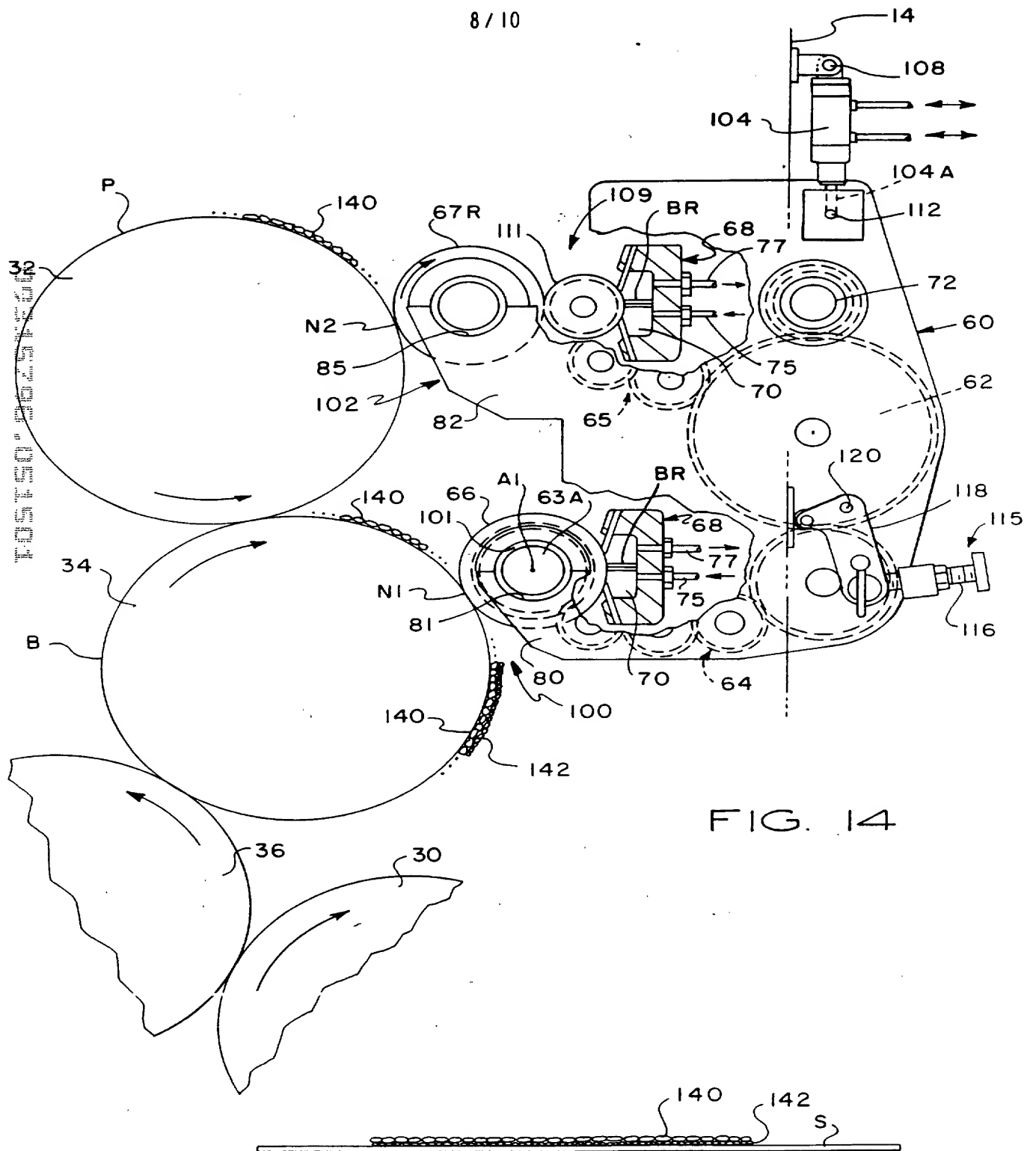


FIG. 14

FIG. 15

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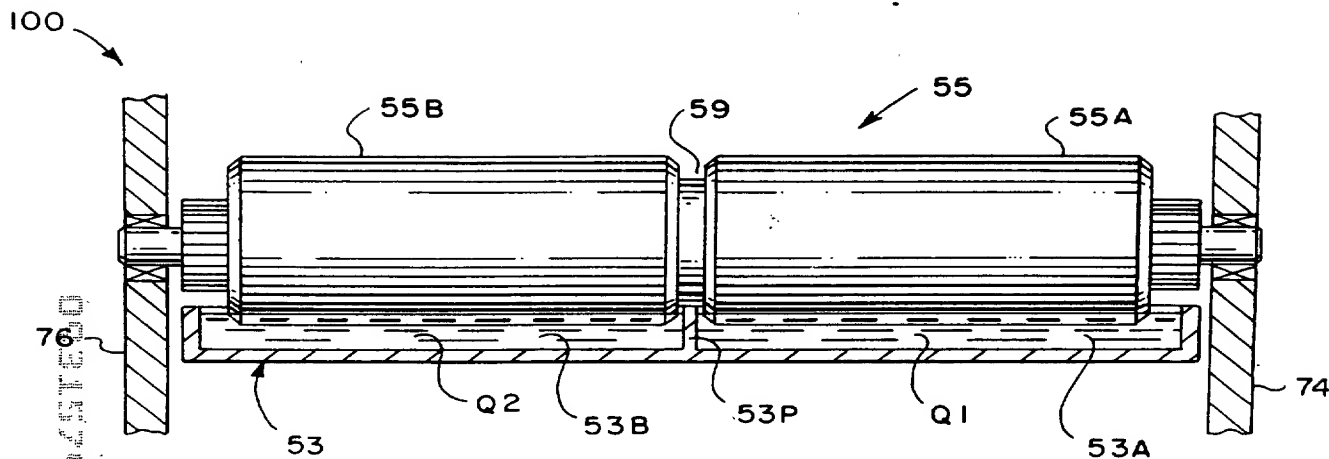


FIG. 16

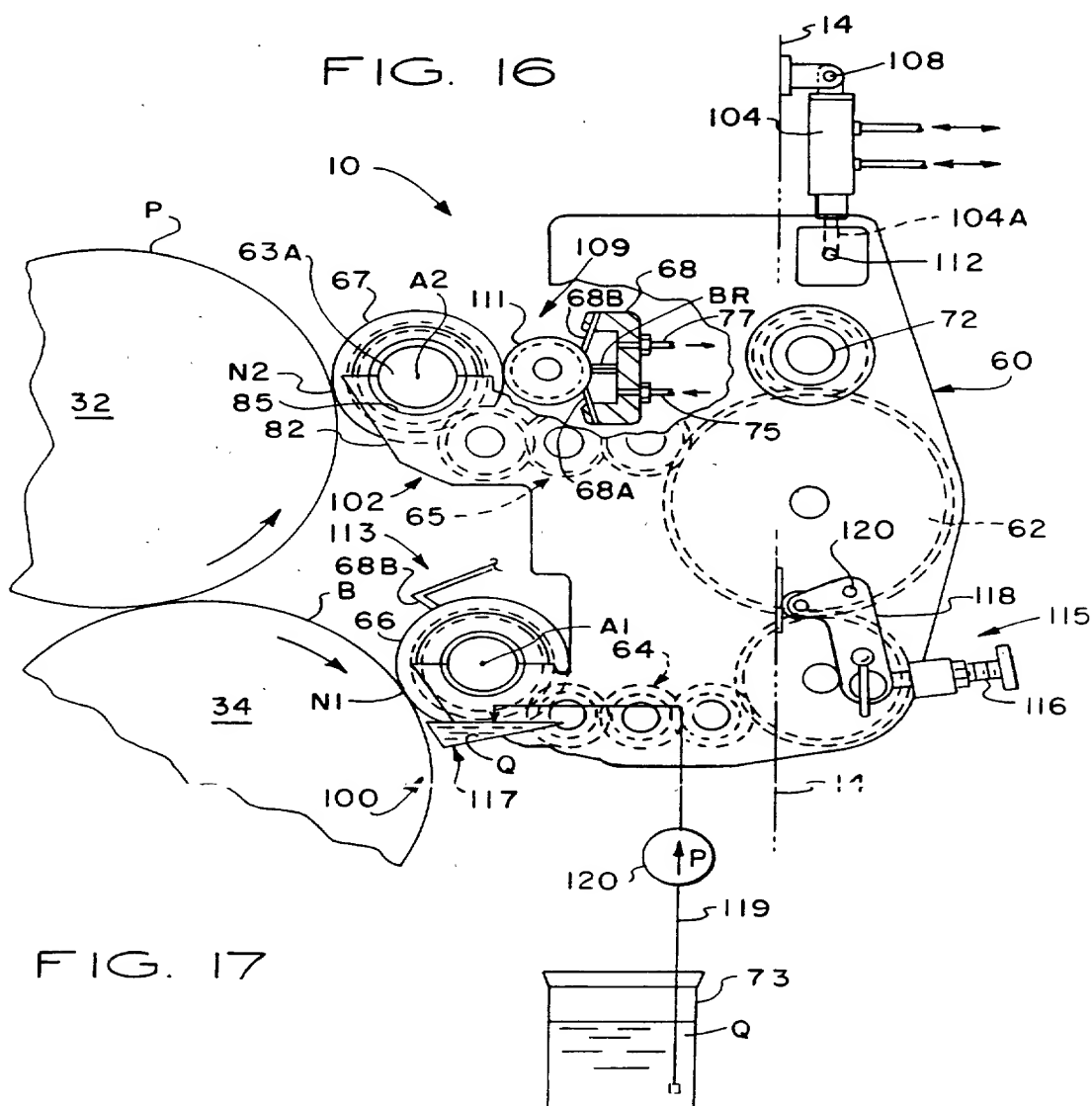


FIG. 17

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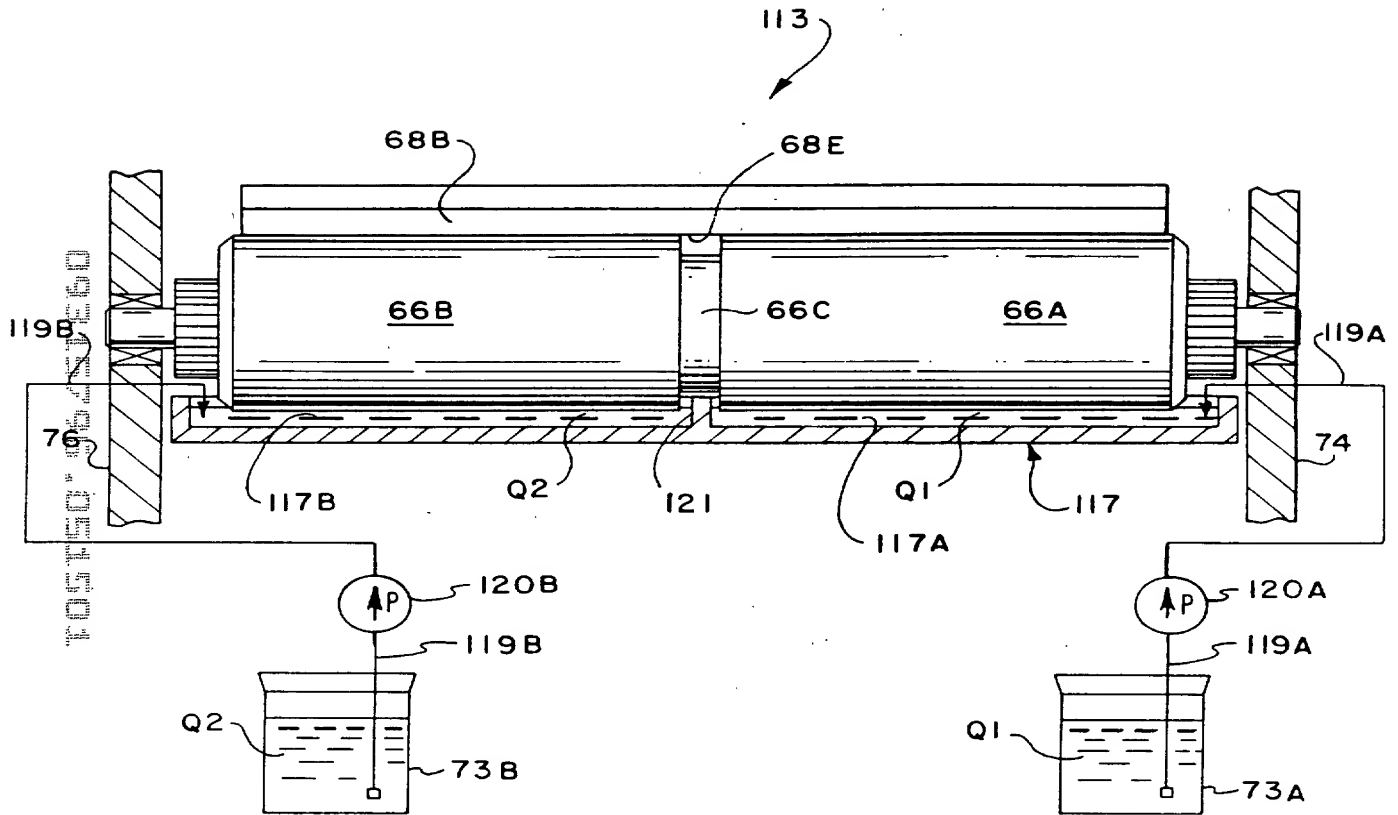


FIG. 18

PATENT APPLICATION FEE DETERMINATION RECORD

Effective October 1, 1995

Application or Docket Number

538422

CLAIMS AS FILED - PART I

(Column 1)

(Column 2)

FOR	NUMBER FILED	NUMBER EXTRA
BASIC FEE		
TOTAL CLAIMS	46 minus 20 =	26
INDEPENDENT CLAIMS	4 minus 3 =	1
MULTIPLE DEPENDENT CLAIM PRESENT		

* If the difference in column 1 is less than zero, enter "0" in column 2

CLAIMS AS AMENDED - PART II

(Column 1)

(Column 2)

(Column 3)

AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
Total	*	Minus **	=
Independent	*	Minus ***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM			

(Column 1)

(Column 2)

(Column 3)

AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
Total	*	Minus **	=
Independent	*	Minus ***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM			

(Column 1)

(Column 2)

(Column 3)

AMENDMENT C	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
Total	*	Minus **	=
Independent	*	Minus ***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM			

SMALL ENTITY

OR

OTHER THAN SMALL ENTITY

RATE	FEE	RATE	FEE
	375.00		750.00
x\$11=	285	x\$22=	
x39=	39	x78=	
+125=	125	+250=	
TOTAL	825	TOTAL	

SMALL ENTITY

OR

OTHER THAN SMALL ENTITY

RATE	ADDITIONAL FEE	RATE	ADDITIONAL FEE
x\$11=		x\$22=	
x39=		x78=	
+125=		+250=	
TOTAL		TOTAL	

RATE	ADDITIONAL FEE
x\$11=	
x39=	
+125=	
TOTAL	

RATE	ADDITIONAL FEE
x\$22=	
x78=	
+250=	
TOTAL	

RATE	ADDITIONAL FEE
x\$11=	
x39=	
+125=	
TOTAL	

RATE	ADDITIONAL FEE
x\$22=	
x78=	
+250=	
TOTAL	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20."

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3."

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

MULTIPLE DEPENDENT CLAIM
FEE CALCULATION SHEET
(FOR USE WITH FORM PTO 875)

SERIAL NO.

538422

FILING DATE

10-2-35

APPLICANT(S)

CLAIMS

	AS FILED		AFTER 1st AMENDMENT		AFTER 2nd AMENDMENT	
	IND.	DEP.	IND.	DEP.	IND.	DEP.
1	1					
2		1				
3		1				
4		1				
5		1				
6		1				
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TOTAL IND.	8					
TOTAL DEP.	42					
TOTAL CLAIMS	46					

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PARENT FILING
DATE
MONTH DAY YEAR

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**FOREIGN
FILING DATE**
MONTH DAY

2023-2024



COPIES DOCKET
No. B6038A

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Hj/EM
7-12-96

In re patent application of)

HOWARD W. DEMOORE, ET AL)

Serial No. 08/538,422)

Filed: 10/02/95)

For: RETRACTABLE PRINTING/COAT-)
ING UNIT OPERABLE ON THE)
PLATE AND BLANKET SIDE OF)
THE FIRST PRINTING UNIT OR)
ANY CONSECUTIVE PRINTING UNIT)
OF ANY ROTARY OFFSET)
PRINTING PRESS)

Group Art Unit 3307

Examiner:

RECEIVED

JUL 2 1996

GROUP 3300

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

TRANSMITTAL OF INFORMATION DISCLOSURE STATEMENT
WITHIN THREE MONTHS OF FILING OR
BEFORE MAILING OF FIRST OFFICE ACTION

The Information Disclosure Statement submitted herewith is being filed within three months of the filing date of the application or date of entry into the national stage of an international application or before the mailing date of a first Office Action on the merits, whichever event occurs last. 37 CFR 1.97(b).

Respectfully submitted,

Date: June 21, 1996 Dennis T. Griggs
Dennis T. Griggs
Registration No. 27,790
Attorney for Applicant

CERTIFICATE OF MAILING (37 CFR 1.8a)

I hereby certify that this TRANSMITTAL OF INFORMATION DISCLOSURE STATEMENT (along with any paper referred to as being attached or enclosed) is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231.

Date:

6/21/96

Kathy Longenecker

(Typed name of person mailing paper)

Kathy Longenecker

(Signature of person mailing paper)

POSTED 36 SEP 10 1996



PATENT

Attorney Docket

No. B6038A

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of)
HOWARD W. DEMOORE, ET AL)
Serial No. 08/538,422) Group Art Unit 3307
Filed: 10/02/95) Examiner:
For: RETRACTABLE PRINTING/COAT-)
ING UNIT OPERABLE ON THE)
PLATE AND BLANKET SIDE OF)
THE FIRST PRINTING UNIT OR)
ANY CONSECUTIVE PRINTING UNIT)
OF ANY ROTARY OFFSET)
PRINTING PRESS)

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

INFORMATION DISCLOSURE STATEMENT

The following sections are submitted for this Information Disclosure Statement:

1. X Preliminary Statements
2. X FORM PTO - 1449
3. _____ Statement As To Information Not Found in Patents or Publications
4. _____ Identification Of Prior Application In Which Information Was Cited And For Which No Copies Are Submitted Or Need Be Submitted
5. _____ Cumulative Patents or Publications
6. _____ Concise Explanation of Non-English Language Listed Information Items

9. X Identification of Person(s) Making This Information Disclosure Statement

Section 1. Preliminary Statements

Applicant submits herewith patents, publications or other information which may be material to the examination of this application and for which there may be a duty to disclose in accordance with 37 CFR 1.56.

The filing of this Information Disclosure Statement shall not be construed as a representation that a search has been made (37 CFR 1.56(g)), or as an admission that the information cited is, or is considered to be, material to patentability.

The filing of this Information Disclosure Statement shall not be construed as an admission against interest in any manner.

Section 2. FORM PTO - 1449

Form PTO - 1449 (3 pages) are enclosed herewith.

Section 3. Statement As To Information Not Found In Patents Or Publications (Information not listed in PTO 1449)

Section 4. Identification Of Prior Application In Which Information Was Cited And for Which No Copies Are Submitted Or Need Be Submitted

This application relies, under 35 U.S.C. 120, on the earlier filing date of prior application S/N _____, filed on _____.

Section 5. Cumulative Patents or Publications

_____ is cumulative of the following patents or publications listed on Form PTO 1449:

RECEIVED
OCT 10 1964

In accordance with 37 CFR 1.98(c) a copy of only _____ is being submitted with this information disclosure statement.

Section 6. Translation(s) of Non-English Language Documents

— No English language translations of the foreign language patents, publications or information or parts thereof are readily available, except for those listed above.

Section 7. Concise Explanation of Non-English Language Listed Information Items

Legible copies of all items listed in Form PTO-1449 accompany this information statement.

— Items in prior application from which an earlier filing date is claimed for this application as identified in Section 4.

Section 9. Identification of Person(s) Making This INFORMATION DISCLOSURE STATEMENT

_____ information supplied by the inventor(s)

X information in the attorney's file

It is respectfully requested that the references identified in this Information Disclosure Statement be considered by the Examiner, be made a part of the official record, and be cited in the issued patent.

Respectfully submitted,

Date:

June 24, 1996

Dennis T. Griggs

Dennis T. Griggs
Registration No. 27,790
Attorney for Applicant

North Dallas Bank Tower, Suite 1202
12900 Preston Road, LB-38
Dallas, Texas 75230
(214) 458-8559

CERTIFICATE OF MAILING (37 CFR 1.8a)

I hereby certify that this INFORMATION DISCLOSURE STATEMENT (along with any paper referred to as being attached or enclosed) is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231.

Date:

6/21/96

Kathy Longenecker

(Typed name of person mailing paper)

Kathy Longenecker

(Signature of person mailing paper)

RECEIVED
JUN 27 1996
FBI - DALLAS

INFORMATION CLOSURE
STATEMENT BY APPLICANT

APPLICANT

Howard W. DeMoore, et al

FILING DATE

10/02/95

GROUP

3307

U.S. PATENT DOCUMENTS

FOREIGN PATENTS OR PUBLISHED FOREIGN PATENT APPLICATIONS

OTHER DOCUMENTS (Including Author, Title, Date, Relevant Pages, Name of Publication)

EXAMINER	<i>[Signature]</i>	DATE CONSIDERED <i>1/6/97</i>

EXAMINER: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

THE 26TH

29



PATENT

Attorney Docket

No. B6038A

THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of

HOWARD W. DEMOORE, ET AL

Serial No. 08/538,422

Filed: 10/02/95

For: RETRACTABLE PRINTING/COAT-
ING UNIT OPERABLE ON THE
PLATE AND BLANKET SIDE OF
THE FIRST PRINTING UNIT OR
ANY CONSECUTIVE PRINTING UNIT
OF ANY ROTARY OFFSET
PRINTING PRESS

Group Art Unit 3307

Examiner:

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

TRANSMITTAL OF SUPPLEMENTAL INFORMATION DISCLOSURE
STATEMENT WITHIN THREE MONTHS OF FILING OR
BEFORE MAILING OF FIRST OFFICE ACTION

The Supplemental Information Disclosure Statement submitted
herewith is being filed within three months of the filing date
of the application or date of entry into the national stage of
an international application or before the mailing date of a
first Office Action on the merits, whichever event occurs last.
37 CFR 1.97(b).

Respectfully submitted,

Date: June 24, 1996

Dennis T. Griggs
Dennis T. Griggs
Registration No. 27,790
Attorney for Applicant

North Dallas Bank Tower, Suite 1202
12900 Preston Road, LB-38
Dallas, Texas 75230
(214) 458-8559

CERTIFICATE OF MAILING (37 CFR 1.8a)

I hereby certify that this TRANSMITTAL OF SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT (along with any paper referred to as being attached or enclosed) is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231.

Date: 06/24/96

Kathy Longenecker

(Typed name of person mailing paper)

Kathy Longenecker

(Signature of person mailing paper)

TELETYPE UNIT



PATENT

Attorney Docket

No. B6038A

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of)

HOWARD W. DEMOORE, ET AL)

Serial No. 08/538,422)

Filed: 10/02/95)

For: RETRACTABLE PRINTING/COAT-)
ING UNIT OPERABLE ON THE)
PLATE AND BLANKET SIDE OF)
THE FIRST PRINTING UNIT OR)
ANY CONSECUTIVE PRINTING UNIT)
OF ANY ROTARY OFFSET)
PRINTING PRESS)

Group Art Unit 3307

Examiner:

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

The following sections are submitted for this
Supplemental Information Disclosure Statement:

1. X Preliminary Statements
2. X FORM PTO - 1449
3. Statement As To Information Not Found in Patents or
Publications
4. Identification Of Prior Application In Which Informa-
tion Was Cited And For Which No Copies Are Submitted
Or Need Be Submitted
5. Cumulative Patents or Publications
6. Concise Explanation of Non-English Language Listed
Information Items

7. _____ Translation(s) of Non-English Language Documents
8. X Copies of Listed Information Items Accompanying This Statement
9. X Identification of Person(s) Making This Information Disclosure Statement

Section 1. Preliminary Statements

Applicant submits herewith patents, publications or other information which may be material to the examination of this application and for which there may be a duty to disclose in accordance with 37 CFR 1.56.

The filing of this Information Disclosure Statement shall not be construed as a representation that a search has been made (37 CFR 1.56(g)), or as an admission that the information cited is, or is considered to be, material to patentability.

The filing of this Information Disclosure Statement shall not be construed as an admission against interest in any manner.

Section 2. FORM PTO - 1449

Form PTO - 1449 (1 page) is enclosed herewith.

Section 3. Statement As To Information Not Found In Patents Or Publications (Information not listed in PTO 1449)

Section 4. Identification Of Prior Application In Which Information Was Cited And for Which No Copies Are Submitted Or Need Be Submitted

This application relies, under 35 U.S.C. 120, on the earlier filing date of prior application S/N _____, filed on _____.

Section 5. Cumulative Patents or Publications

_____ is cumulative of the following patents or publications listed on Form PTO 1449:

In accordance with 37 CFR 1.98(c) a copy of only _____ is being submitted with this information disclosure statement.

Section 6. Translation(s) of Non-English Language Documents

— Submitted herewith is an English translation of the following foreign language patents, publications or information or of those portions of those patents, publications or information considered to be material.

— No English language translations of the foreign language patents, publications or information or parts thereof are readily available, except for those listed above.

— The following foreign language documents submitted are believed to be the equivalent or substantial equivalent of the English language documents identified below, which are also submitted herewith.

Section 7. Concise Explanation of Non-English Language Listed Information Items

Section 8. Copies of Listed Information Items Accompanying This Statement

Legible copies of all items listed in Form PTO-1449 accompany this information statement.

— Exception(s) to above

— Items in prior application from which an earlier filing date is claimed for this application as identified in Section 4.

— Cumulative patents or publications identified in Section 5.

Section 9. Identification of Person(s) Making This INFORMATION DISCLOSURE STATEMENT

The person making this statement is the attorney who signs below on the basis of:

— information supplied by the inventor(s)

— information supplied by an individual associated with the filing and prosecution of this application (37 CFR 1.56(c))

X information in the attorney's file

It is respectfully requested that the references identified in this Information Disclosure Statement be considered by the Examiner, be made a part of the official record, and be cited in the issued patent.

Respectfully submitted,

Date:

June 24, 1996

Dennis T. Griggs
Dennis T. Griggs
Registration No. 27,790
Attorney for Applicant

North Dallas Bank Tower, Suite 1202
12900 Preston Road, LB-38
Dallas, Texas 75230
(214) 458-8559

CERTIFICATE OF MAILING (37 CFR 1.8a)

I hereby certify that this INFORMATION DISCLOSURE STATEMENT (along with any paper referred to as being attached or enclosed) is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231.

Date: 06/24/96

Kathy Longenecker
(Typed name of person mailing paper)

Kathy Longenecker
(Signature of person mailing paper)

EXAMINER: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

TOGETHER WE CAN SAVE THE WORLD

30



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

SERIAL NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO.
10/20/95			

PERMIT TO GRIND
ALVIN GUMP STRAUSS HAUER & FELD
3700 PACIFIC AVENUE SUITE 4000
DALLAS TX 75201-4618

EXAMINER	
ART UNIT 302	PAPER NUMBER 4

DATE MAILED:

Please find below a communication from the EXAMINER in charge of this application.

Commissioner of Patents

Office Action Summary

Application No.
08/538,422

Applicant(s)
Howard W. Demoore et al

Examiner
J. R. Fisher

Group Art Unit
3307



- ☐ Responsive to communication(s) filed on _____
- ☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire THREE month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

- ☒ Claim(s) 1-31 is/are pending in the application.
- ☐ Of the above, claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 1-31 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claims _____ are subject to restriction or election requirement.

Application Papers

- ☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- ☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
- ☐ received.
- ☐ received in Application No. (Series Code/Serial Number) _____
- ☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

- ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- ☒ Notice of References Cited, PTO-892
- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 2 and 3
- ☐ Interview Summary, PTO-413
- ☒ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

Serial No. 08/538422

-2-

Art Unit 3307

The specification does not include referencing data with respect to Serial No. 08/435,798 (referenced in the declaration).

* **Claims 1-31 are rejected under 35 U.S.C. § 112, second paragraph**, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claim language is narrative in part, reciting elements in an inferential manner, omitting necessary and meaningful structural cooperation and connections between elements, and omitting necessary antecedent structure to support the various recitations of function. The claims are indefinite as to the structural arrangement of parts so as to enable a definite and meaningful system.

The recitation in these claims of "inking/coating" is indefinite as to whether such is to be interpreted as "inking and coating" or "inking or coating".

The following recitations are purely functional in format for which there is a lack of sufficient antecedent structure recited for support:

The recitation of "...for movement to an on-impression operative position...retracted position..." (cl. 1). is purely functional and structurally incomplete with respect to any structure for mounting the apparatus for movement and structure for mounting the apparatus to move between the positions as recited in the last five lines.

The recitation of "....the applicator roller being engagable with a printing plate...when the inking/coating apparatus is in the operative position..." (cls. 2 and 7)

08/538422-02-001

Serial No. 08/538422

-3-

Art Unit 3307

is purely functional, lacking antecedent structure.

In claim 20, the functional recitation of the apparatus "being "pivotally coupled" is not determinative of a definite structural cooperation between the parts which are coupled so that it can be determined how and in what structural manner the parts are functionally interrelated.

In claim 1, the recitations of "a plate mounted on the plate cylinder", "a plate" or "blanket" mounted on the blanket cylinder" are inferential in format since no positive recitations of the same as been set forth. Further, such recitations are alternative and indefinite as to scope. The recitation of "...either separately or simultaneously..." is alternative and indefinite as to meaning. It is not apparent how and by what means the material can be applied simultaneous to a plate and blanket mounted on the blanket cylinder.

* The following recitations lack antecedent basis in the claim:

"...a plate..." (cls. 1, 9, 26, 30, 31, etc.)

"...blanket..." (cls. 1, 7, 30, 31, etc.)

"...a printing plate..." (cl. 2, 7, etc.)

"...the at least one cradle means..." (cl. 8)

"...the dryer..." "cl. 17)

"...an interunit position..." (cl. 17)

"...an interunit dryer..." (cl. 17)

Serial No. 08/538422

-4-

Art Unit 3307

"...of a first printing unit..." (cl. 19)

"...of a second printing unit..." (cl. 19)

"...the supply reservoir..." (cl. 27)

"...the blanket cylinder..." (cl. 29/11, 29/20, 31/11)

"...the plate cylinder..." (cl. 31/20)

In claim 10, it is not apparent what structure or function is meant by "...a dampener space..."

In claims 14 and 20, it is not apparent what structure and function is meant by a "dampener side" and "delivery side".

In claim 18, it is not apparent what structure is meant by "an interunit dryer position" and "an interunit dryer".

In claim 15, the recitation of "...before the freshly printed or coated substrate is subsequently printed, coated or other wise processed..." is inferential in format since there is no antecedent structure recited for "subsequently printed, coated or otherwise processed".

The above are examples only. The claims are narrative in form and replete with indefinite and functional or operational language. The structure which goes to make up the device must be clearly and positively specified with enough functional language to lend meaning thereto. The recited structure must be organized and correlated in such manner as to present a complete operative device.

Serial No. 08/538422

-5-

Art Unit 3307

Applicant is advised that the time for correction of all claim indefiniteness is with applicant's next response. The interpretation of claimed structure and how such structure differs from prior art structure necessarily depends on the definiteness with which the claim language is set forth. Efficient examination and prosecution of this application can only be carried out with claims that are set forth with definite and meaningful claim language.

Increased emphasis is now placed on quality reinforcement for securing claim definiteness and eliminating claim informalities. In order to be fully responsive to this action applicant's cooperation is needed in thoroughly reviewing each of the outstanding claims, including any subsequently added, and appropriately correcting any errors which would make the claims indefinite, especially those involving inferentially recited elements, lack of definite antecedent basis for claimed elements, alternative language, structural incompleteness and the lack of antecedent structure to support functional recitations.

* **Claims 3, 25 and 26 are rejected under 35 U.S.C. 112, first paragraph,** as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is no adequate disclosure as to what roller structure and roller fabrication is meant by "an anilox roller having a resilient transfer surface." No examples are disclosed as to how and in what

Serial No. 08/538422

-6-

Art Unit 3307

manner a resilient transfer surface is incorporated with a anilox roller.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

* **Claims 1, 10, 14-17 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Bird (4,841,903).** Bird (4,841,903) discloses an inking or coating apparatus for applying ink or coating material to a plate mounted on a plate cylinder or to a blanket mounted on the blanket cylinder and including a carriage assembly having a support arm that is movable to an operative position in which the inking or coating apparatus is suspended laterally adjacent to the plate and blanket cylinders and being movable to a retracted position in which the inking or coating apparatus is elevated with respect to the plate and blanket cylinders. The structure as positively and meaningfully claimed is readable on the same as disclosed by Bird '903. Further, the disclosure in Bird '903 is considered to be the obvious functional and structural equivalent to the claimed subject matter insofar as the claims are supported and are enabled by meaningful structure. With respect to claims 14 and 17, Bird (4,841,903) discloses a dryer 25 mounted adjacent the impression cylinder for discharging heated air onto a freshly printed substrate and an extractor 28 coupled to the dryer for extracting hot air and moisture from an exposure zone.

Serial No. 08/538422

-7-

Art Unit 3307

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

* **Claims 2, 7, 11-13, 28/1, 28/11, 28/14 are rejected under 35 U.S.C. 103(a)** as being unpatentable over Bird (4,841,903) in view of DiRico (4,685,414). Bird (4,841,903) further discloses an applicator roller for contacting either the plate cylinder or the blanket cylinder. DiRico (4,685,414) is applied to show conventional applicator structure comprising a doctor blade and applicator roller in fluid communication with a fluid reservoir. It would have been obvious to one having ordinary skill in the art at the time the invention was made to broadly utilize conventional doctor blade and applicator roller structure in Bird (4,841,903), for example such as exemplified by DiRico (4,685,414), if in fact such is not inherent in Bird (4,841,903). The motivation would have involved merely the selection of equivalent fluid application components so as to obtain the expected and desired function therein.

* **Claims 3, 25, 26 are rejected under 35 U.S.C. 103(a)** as being unpatentable over Bird (4,841,903) in view of DiRico (4,685,414), as applied to claim 2, above, further in view of each of Rhorer (3,360,393) and Goettsch (2,531,036). It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a conventional resilient surface on the anilox applicator roller in Bird

Serial No. 08/538422

-8-

Art Unit 3307

(4,841,903), as applied, especially in view of each of Rhorer (3,360,393) and Goettsch (2,531,036) who each discloses that it is old to utilize a resilient transfer surface on an anilox type applicator roller. The motivation would have been so as to obtain the desired fluid function from the use of a resilient transfer surface.

* **Claims 4-6, 20, 22, 23, 24, 31/1, 31/20, 31/14 are rejected under 35 U.S.C. 103(a)** as being unpatentable over Bird (4,841,903) in view of Sarda (4,889,051). Bird (4,841,903) discloses an inking or coating apparatus for applying ink or coating material to a plate mounted on a plate cylinder or to a blanket mounted on the blanket cylinder and including a carriage assembly having a support arm that is movable to an operative position in which the inking or coating apparatus is suspended laterally adjacent to the plate and blanket cylinders and being movable to a retracted position in which the inking or coating apparatus is elevated with respect to the plate and blanket cylinders. Sarda (4,889,051) discloses a carriage assembly including a support arm having a first end portion pivotally coupled to a printing unit tower and a second end portion pivotally coupled to an inking apparatus, the carriage assembly being movable to an operative position in which the inking apparatus is suspended laterally adjacent to the plate and blanket cylinder and being movable to a retracted position in which the ink apparatus is elevated with respect to the plate and blanket cylinders. It would have been obvious to one having ordinary skill in the art at the time the invention was made to broadly utilize a carriage assembly apparatus such as

Serial No. 08/538422

-9-

Art Unit 3307

exemplified by Sarda (4,889,051) for providing the interrupting and engagement movements for the carriage assembly in Bird (4,841,903). The motivation would have involved merely the desire to obtain the expected and desired motion and movement capability of the assembly as disclosed by Sarda (4,889,051). With respect to claim 5, Sarda (4,889,051) discloses a power actuator 29.

* **Claims 31/11 is rejected under 35 U.S.C. 103(a)** as being unpatentable over Bird (4,841,903) in view of DiRico (4,685,414), as applied to claim 11 above, further in view of Sarda (4,889,051). Bird (4,841,903) discloses an inking or coating apparatus for applying ink or coating material to a plate mounted on a plate cylinder or to a blanket mounted on the blanket cylinder and including a carriage assembly having a support arm that is movable to an operative position in which the inking or coating apparatus is suspended laterally adjacent to the plate and blanket cylinders and being movable to a retracted position in which the inking or coating apparatus is elevated with respect to the plate and blanket cylinders. Sarda (4,889,051) discloses a carriage assembly including a support arm having a first end portion pivotally coupled to a printing unit tower and a second end portion pivotally coupled to an inking apparatus, the carriage assembly being movable to an operative position in which the inking apparatus is suspended laterally adjacent to the plate and blanket cylinder and being movable to a retracted position in which the ink apparatus is elevated with respect to the plate and blanket cylinders. It would have been obvious to one having ordinary skill

Serial No. 08/538422

-10-

Art Unit 3307

in the art at the time the invention was made to broadly utilize a carriage assembly apparatus such as exemplified by Sarda (4,889,051) for providing the interrupting and engagement movements for the carriage assembly in Bird (4,841,903). The motivation would have involved merely the desire to obtain the expected and desired motion and movement capability of the assembly as disclosed by Sarda (4,889,051). With respect to claim 5, Sarda (4,889,051) discloses a power actuator 29.

* **Claims 18, 19 are rejected under 35 U.S.C. 103(a)** as being unpatentable over Bird (4,841,903) in view of Rodi (5,115,741). It would have been obvious to one having ordinary skill in the art at the time the invention was made to place the dryer devices in Bird (4,841,903) at any desired location including at a location disposed adjacent to the transfer cylinder for discharging heated air onto a freshly printed or coated substrate; for example, if such were desired in addition to the locations defined therein. This is especially so in view of Rodi (5,115,741) who teaches that it is conventional to locate a dryer adjacent to a transfer cylinder. The motivation would have involved merely the selection of conventional dryer locations so as to obtain the expected function therefrom.

* **Claims 28/20 are rejected under 35 U.S.C. 103(a)** as being unpatentable over Bird (4,841,903) in view of Sarda as applied to claim 20 above, further in view of DiRico (4,685,414). Bird (4,841,903) further discloses an applicator roller for contacting either the plate cylinder or the blanket cylinder. DiRico (4,685,414) is

Serial No. 08/538422

-11-

Art Unit 3307

applied to show conventional applicator structure comprising a doctor blade and applicator roller in fluid communication with a fluid reservoir. It would have been obvious to one having ordinary skill in the art at the time the invention was made to broadly utilize conventional doctor blade and applicator roller structure in Bird (4,841,903), for example such as exemplified by DiRico (4,685,414), if in fact such is not inherent in Bird (4,841,903). The motivation would have involved merely the selection of equivalent fluid application components so as to obtain the expected and desired function therein.

* **Claims 29/1, 29/14 are rejected under 35 U.S.C. 103(a)** as being unpatentable over Bird (4,841,903) in view of Koehler (5,178,678). It would have been obvious to one having ordinary skill in the art at the time the invention was made to broadly utilize a plate on the blanket cylinder in Bird '903 for the reasons as taught by Koehler.

* **Claim 29/11 is are rejected under 35 U.S.C. 103(a)** as being unpatentable over Bird (4,841,903) in view of DiRico (4,685,414), as applied to claim 11, further in view of Koehler (5,178,678). It would have been obvious to one having ordinary skill in the art at the time the invention was made to broadly utilize a plate on the blanket cylinder in Bird '903 for the reasons as taught by Koehler.

* **Claims 29/20 is rejected under 35 U.S.C. 103(a)** as being unpatentable over Bird (4,841,903) in view of Sarda (4,889,051) as applied to claim 20, further in view of Koehler (5,178,678). It would have been obvious to one having ordinary skill in the

Serial No. 08/538422

-13-

Art Unit 3307

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discloses the conventional expedient of utilizing a circulation and heat exchange system for the fluid supply material in a printing press. It would have been obvious to one having ordinary skill in the art at the time the invention was made, having the teachings of Yoshida et al, to utilize a circulation system with heat exchanger for the fountain fluid in Bird. The motivation would have involved the reasons as disclosed by Yoshida et al.

* **Claims 27/20 is rejected under 35 U.S.C. 103(a)** as being unpatentable over Bird (4,841,903) in view of Sarda (4,889,051) as applied to claim 20, further in view of Yoshida et al (5,280,750). Yoshida et al (5,280,750) discloses the conventional expedient of utilizing a circulation and heat exchange system for the fluid supply material in a printing press. It would have been obvious to one having ordinary skill in the art at the time the invention was made, having the teachings of Yoshida et al, to utilize a circulation system with heat exchanger for the fountain fluid in Bird. The motivation would have involved the reasons as disclosed by Yoshida et al.

J. REED FISHER
PRIMARY EXAMINER
ART UNIT 3307

703 308-0525
January 2, 1997

Notice of References Cited

Application No.
08/538,422

Applicant(s)
Howard W. Demoore et al

Examiner
J. R. Fisher

Group Art Unit
3307

Page 1 of 1

U.S. PATENT DOCUMENTS

	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS
A	5,115,741	05/26/92	Rodi	101	416.1X
B	4,889,051	12/26/89	Sarda	101	77
C	3,360,393	12/26/67	Rhorer	101	348X
D	2,531,036	11/21/50	Goettsch	101	348X
E	4,685,414	08/11/87	DiRico	101	352
F	4,841,903	06/27/89	Bird	101	201X
G	5,280,750	01/25/94	Yoshida et al	101	363
H					
I					
J					
K					
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M					

FOREIGN PATENT DOCUMENTS

	DOCUMENT NO.	DATE	COUNTRY	NAME	CLASS	SUBCLASS
N						
O						
P						
Q						
R						
S						
T						

NON-PATENT DOCUMENTS

	DOCUMENT (Including Author, Title, Source, and Pertinent Pages)	DATE
U		
V		
W		
X		

NOTICE OF DRAFTSPERSON'S PATENT DRAWING REVIEW

PTO Draftpersons review all originally filed drawings regardless of whether they are designated as formal or informal. Additionally, patent Examiners will review the drawings for compliance with the regulations. Direct telephone inquiries concerning this review to the Drawing Review Branch, 703-305-8404.

The drawings filed (insert date) 10-2-95, are
 A. ☒ not objected to by the Draftsperson under 37 CFR 1.84 or 1.152.
 B. ☒ objected to by the Draftsperson under 37 CFR 1.84 or 1.152 as indicated below. The Examiner will require submission of new, corrected drawings when necessary. Corrected drawings must be submitted according to the instructions on the back of this Notice.

1. DRAWINGS. 37 CFR 1.84(a): Acceptable categories of drawings:

Black ink. Color.

☒ Not black solid lines. Fig(s) _____

☒ Color drawings are not acceptable until petition is granted.

Fig(s) _____

2. PHOTOGRAPHS. 37 CFR 1.84(b)

☒ Photographs are not acceptable until petition is granted.

Fig(s) _____

☒ Photographs not properly mounted (must use bristol board or photographic double-weight paper). Fig(s) _____

☒ Poor quality (half-tone). Fig(s) _____

3. GRAPHIC FORMS. 37 CFR 1.84(d)

☒ Chemical or mathematical formula not labeled as separate figure.

Fig(s) _____

☒ Group of waveforms not presented as a single figure, using common vertical axis with time extending along horizontal axis.

Fig(s) _____

☒ Individual waveform not identified with a separate letter designation adjacent to the vertical axis. Fig(s) _____

4. TYPE OF PAPER. 37 CFR 1.84(c)

☒ Paper not flexible, strong, white, smooth, nonshiny, and durable.

Sheet(s) _____

☒ Erasures, alterations, overwritings, interlineations, cracks, creases, and folds copy machine marks not accepted. Fig(s) _____

☒ Mylar, velum paper is not acceptable (too thin). Fig(s) _____

5. SIZE OF PAPER. 37 CFR 1.84(f): Acceptable sizes:

21.6 cm. by 35.6 cm. (8 1/2 by 14 inches)

21.6 cm. by 33.1 cm. (8 1/2 by 13 inches)

21.6 cm. by 27.9 cm. (8 1/2 by 11 inches)

21.0 cm. by 29.7 cm. (DIN size A4)

☒ All drawing sheets not the same size. Sheet(s) _____

☒ Drawing sheet not an acceptable size. Sheet(s) _____

6. MARGINS. 37 CFR 1.84(g): Acceptable margins:

Paper size

21.6 cm. X 35.6 cm. (8 1/2 X 14 inches)	21.6 cm. X 33.1 cm. (8 1/2 X 13 inches)	21.6 cm. X 27.9 cm. (8 1/2 X 11 inches)	21.0 cm. X 29.7 cm. (DIN Size A4)
T 3.1 cm. (2")	2.5 cm. (1")	2.5 cm. (1")	2.5 cm.
L .64 cm. (1/4")	.64 cm. (1/4")	.64 cm. (1/4")	2.5 cm.
R .64 cm. (1/4")	.64 cm. (1/4")	.64 cm. (1/4")	1.5 cm.
B .64 cm. (1/4")	.64 cm. (1/4")	.64 cm. (1/4")	1.0 cm.

Margins do not conform to chart above

Sheet(s) 3

Top (T) ☒ Left (L) ☒ Right (R) ☒ Bottom (B)

7. VIEWS. 37 CFR 1.84(h)

REMINDER: Specification may require revision to correspond to drawing changes.

☒ All views not grouped together. Fig(s) _____

☒ Views connected by projection lines or lead lines.

Fig(s) _____

☒ Partial views. 37 CFR 1.84(h) 2

☒ View and enlarged view not labeled separately or properly. Fig(s) _____

☒ Sectional views. 37 CFR 1.84 (h) 3

☒ Hatching not indicated for sectional portions of an object.

Fig(s) _____

☒ Cross section not drawn same as view with parts in cross section with regularly spaced parallel oblique strokes. Fig(s) _____

8. ARRANGEMENT OF VIEWS. 37 CFR 1.84(i)

☒ Words do not appear on a horizontal, left-to-right fashion when page is either upright or turned so that the top becomes the right side, except for graphs. Fig(s) _____

9. SCALE. 37 CFR 1.84(k)

☒ Scale not large enough to show mechanism with crowding when drawing is reduced in size to two-thirds in reproduction.

Fig(s) _____

☒ Indication such as "actual size" or scale 1/2" not permitted.

Fig(s) _____

10. CHARACTER OF LINES, NUMBERS, & LETTERS. 37 CFR 1.84(l)

☒ Lines, numbers & letters not uniformly thick and well defined, clean, durable, and black (except for color drawings).

Fig(s) _____

11. SHADING. 37 CFR 1.84(m)

☒ Solid black shading areas not permitted.

Fig(s) _____

☒ Shade lines, pale, rough and blurred. Fig(s) _____

12. NUMBERS, LETTERS, & REFERENCE CHARACTERS. 37 CFR 1.84(p)

☒ Numbers and reference characters not plain and legible. 37 CFR 1.84(p)(1) Fig(s) _____

☒ Numbers and reference characters not oriented in same direction as the view. 37 CFR 1.84(p)(1) Fig(s) _____

☒ English alphabet not used. 37 CFR 1.84(p)(2)

Fig(s) _____

☒ Numbers, letters, and reference characters do not measure at least .32 cm. (1/8 inch) in height. 37 CFR(p)(3)

Fig(s) _____

13. LEAD LINES. 37 CFR 1.84(q)

☒ Lead lines cross each other. Fig(s) _____

☒ Lead lines missing. Fig(s) _____

14. NUMBERING OF SHEETS OF DRAWINGS. 37 CFR 1.84(t)

☒ Sheets not numbered consecutively, and in Arabic numerals, beginning with number 1. Sheet(s) _____

15. NUMBER OF VIEWS. 37 CFR 1.84(u)

☒ Views not numbered consecutively, and in Arabic numerals, beginning with number 1 Fig(s) _____

☒ View numbers not preceded by the abbreviation Fig.

Fig(s) _____

16. CORRECTIONS. 37 CFR 1.84(w)

☒ Corrections not made from prior PTO-948.

Fig(s) _____

17. DESIGN DRAWING. 37 CFR 1.152

☒ Surface shading shown not appropriate. Fig(s) _____

☒ Solid black shading not used for color contrast.

Fig(s) _____

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GROUP 330

HOWARD W. DEMOORE et al.

08/538,422

October 2, 1995

3307

**RETRACTABLE PRINTING/COATING UNIT OPERABLE ON THE
PLATE AND BLANKET CYLINDERS SIMULTANEOUSLY FROM
THE DAMPENER SIDE OF THE FIRST PRINTING UNIT OR ANY
CONSECUTIVE PRINTING UNIT OF ANY ROTARY OFFSET
PRINTING PRESS**

Washington, D.C. 20231

**REVOCATION OF PRIOR POWERS OF ATTORNEY,
AND NEW POWER OF ATTORNEY
WITH CERTIFICATE UNDER 37 C.F.R. § 3.73(b)**

1. Said patent application was filed on behalf of the above named inventor(s);

Spruell
6-16-97
5 / Rev.
+ P/atty
(by Assign)

97 JAN 16 PM 12:44

11178/10801

2. An Assignment, recorded June 24, 1996 by the above named inventors, of said patent application to Howard W. DeMoore, an individual, was recorded at REEL 8001, FRAMES 994-997;

The undersigned has reviewed all of the documents in the chain of title of said patent application and, to the best of undersigned's knowledge and belief, title is in said Howard W. DeMoore.

Howard W. DeMoore, being the owner of the entire right, title and interest for the above-identified patent application, hereby revokes all powers of attorney for the above-identified patent application heretofore given, and hereby appoints:

V. Bryan Medlock, Jr.	Reg. No. 22047
Garland P. Andrews	Reg. No. 24153
Charles S. Cotropia	Reg. No. 27189
James P. Bradley	Reg. No. 27537
Dale B. Nixon	Reg. No. 28454
William R. Gustavson	Reg. No. 29160
David L. Hitchcock	Reg. No. 30067
Roger N. Chauza	Reg. No. 29753
Eugenia S. Hansen	Reg. No. 31966
James W. Williams	Reg. No. 20047
Elisabeth A. Evert	Reg. No. 34156

all of the firm of Sidley & Austin, its attorneys with full power of substitution and revocation, to transact all business in the United States Patent and Trademark Office connected therewith.

Effective immediately, please address all correspondence relating to the above-identified patent to:

11178/10801

00315796 00315796

Sidley & Austin
4500 Renaissance Tower
1201 Elm Street
Dallas, Texas 75270-2197

Please direct all telephone calls to:

William R. Gustavson
Direct Telephone (214) 981-3310
Main Telephone (214) 981-3300
Fax Number (214) 981-3400

I hereby declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true; and further, that these statements are made with the knowledge that willful false statements, and the like so made, are punishable by fine or imprisonment, or both, under Section 1001, Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

6/12/97
Date

BY:


Howard W. DeMoore

TO THE PUBLIC



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO.
08/538,422	10/02/95	DEMOORE	

Dennis T. Griggs
AKin, Gump, Strauss, Hauer + Feld
1700 Pacific Avenue, Suite 4100
Dallas, TX 75201-4618

EXAMINER	
Fisher	
ART UNIT	PAPER NUMBER
3307	6

DATE MAILED: 06/17/97

This is in response to the Power of Attorney filed June 16, 1997

- ☐ 1. The Power of Attorney to you in this application **has been revoked** by the applicant. Future correspondence will be mailed to the new address of record. 37 CFR 1.33.
- ☒ 2. The Power of Attorney to you in this application **has been revoked** by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record. (37 CFR 1.33).
- ☐ 3. The withdrawal as attorney in this application **has been accepted**. Future correspondence will be mailed to the new address of record. 37 CFR 1.33.

This is a communication from the
Patent and Trademark Office

- ☒ 4. The Power of Attorney in this application **is accepted**. Correspondence in this application will be mailed to the below-noted address as provided by 37 CFR 1.33.
- ☐ 5. The Power of Attorney in this application **is not accepted** for the reason(s) checked below:
- ☐ a. The Power of Attorney is from an assignee and the Certificate required by 37 CFR 3.73 (b) has not been received.
 - ☐ b. The person signing for the assignee has omitted their empowerment to sign on behalf of the assignee.
 - ☐ c. The inventor(s) is without authority to appoint attorneys since the assignee has intervened as provided by 37 CFR 3.71.
 - ☐ d. The signature of _____, a co-inventor in this application, has been omitted. The Power of Attorney will be entered upon receipt of confirmation signed by said co-inventor.
 - ☐ e. The person(s) appointed in the Power of Attorney is not registered to practice before the U.S. Patent & Trademark Office.
 - ☐ f. The revocation is not signed by the applicant, the assignee of the entire interest, or one particular principal attorney having the authority to revoke.

Sidley & Austin
4500 Renaissance Tower
1201 Elm Street
Dallas, TX 75270-2197

L. Spruell, Art Unit Clerk
This is a communication from the
Patent and Trademark Office

TOP SECRET

11178/10801

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BOARD OF PATENT APPEALS AND INTERFERENCES**

In re application of:

HOWARD W. DEMOORE et al.

Serial No.:

08/538,422

Filed:

October 2, 1995

Group No.:

3307

Examiner:

J. R. Fisher

For:

RETRACTABLE PRINTING/COATING UNIT OPERABLE ON THE
PLATE AND BLANKET CYLINDERS SIMULTANEOUSLY FROM THE
DAMPENER SIDE OF THE FIRST PRINTING UNIT OR ANY
CONSECUTIVE PRINTING UNIT OF ANY ROTARY OFFSET
PRINTING PRESS

Assistant Commissioner

For Patents

Washington, D.C. 20231

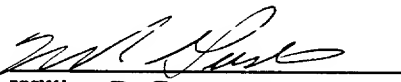
Dear Sir:

POWER TO INSPECT AND MAKE COPIES

Please grant Jane Edwards the power to inspect and make copies of any and all papers related to the above-identified application.

Respectfully submitted,

By:


William R. Gustavson
Registration No. 29,160

WRG/jk

Date: June 13, 1997

SIDLEY & AUSTIN

4500 Renaissance Tower

1201 Elm Street

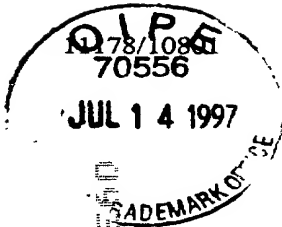
Dallas, TX 75270-2197

(214) 981-3310

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✓ J. R. Fisher
6-20-97
#7/Power
TO
Inspect

6-20-97
GROUP 330



06/15/97 05:15:01

1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Howard W. DeMoore, et al.

Serial No.: 08/538,422

Filed: October 2, 1995

Group Art Unit: 3307

Examiner: J. Fisher

For: RETRACTABLE PRINTING/COATING UNIT OPERABLE ON THE PLATE AND BLANKET CYLINDER SIMULTANEOUSLY FROM THE DAMPENING SIDE OF THE FIRST PRINTING UNIT OR ANY CONSECUTIVE PRINTING UNIT OF ANY ROTARY OFFSET PRINTING PRESS

RECEIVED
AUG 1 1997

Assistant Commissioner for

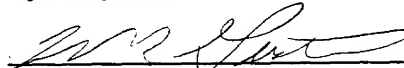
Patents

Washington, D.C. 20231

Dear Sir:

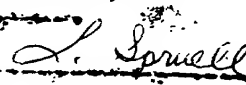
I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231 on July 9, 1997. Date of Deposit

William R. Gustavson, Registration No. 29,160
Name of Applicant, Assignee, or
Registered Representative


Signature
Date of Signature July 9, 1997

AMENDMENT

This Amendment is in response to the Office Action mailed January 9, 1997.
Please amend the Application as follows:

REQUEST FOR ~~REVISION~~ ~~REVISION~~ IS GRANTED BY
AUTHORITY OF ~~THE~~ ~~REGISTERED~~ ~~REPRESENTATIVE~~ FOR
3 mo.

Clerk, Group 330
U. S. P. O.
ATTN Notified

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Spruill
8-13-97
#8
a
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06/1997 MIDDLET 00000194 08538422
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IN THE CLAIMS

Please amend the claims as follows:

5 1. (Amended) In a printing press of the type having first and second side frame members forming a printing unit on which a plate cylinder, a blanket cylinder and an impression cylinder are supported for rotation, the cylinders forming a printing unit having a delivery side and a dampener side, the dampener side having a dampener position for accommodating a dampener when a dampener is used with a printing unit, the plate cylinder adapted for mounting a plate and the blanket cylinder adopted for mounting a blanket or plate, the improvement comprising:

10 inking or [/] coating apparatus movably coupled to the printing unit in the dampener space;

a structure for movement of the inking or coating apparatus to an on-impression operative position and to an off-impression retracted position relative the printing unit; and

15 the inking or [/] coating apparatus including means for applying ink or coating material to a plate mounted on the plate cylinder, or to a plate or blanket mounted on the blanket cylinder, either separately or simultaneously when the inking or [/] coating apparatus is in the operative position.

2. (Amended) The invention as set forth in Claim 1 wherein the inking or [/] coating apparatus comprises:

a doctor blade assembly having a reservoir for receiving ink or coating material;

5 an applicator roller coupled to the doctor blade assembly in fluid communication with the reservoir, the applicator roller engaged [being engagable] with a printing plate on the plate cylinder or with a blanket on the blanket cylinder when the inking or [/] coating apparatus is in the operative position.

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Claim 4, line 6, change "inking/coating" to --inking or coating--.

Claim 5, lines 7 and 9, change "inking/coating" to --inking or coating--.

Claim 6, lines 4 and 7, change "inking/coating" to --inking or coating--.

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7. (Amended) The invention as set forth in Claim 1, the inking or [/]
coating apparatus comprising:

an applicator head having first and second side support members;

the ink or coating applying means being mounted between the first side
support member and second side support member and having a reservoir or fountain
pan for receiving ink or coating material;

at least one cradle means mounted on the first and second side support
members, respectively;

applicator roller means including at least one applicator roller mounted for
rotation on the cradle means and disposed for rolling contact with ink or coating
material in the reservoir or fountain pan, the applicator roller engaging [being
engagable with] a printing plate on the plate cylinder or with a blanket on the
blanket cylinder in the operative position; and,

power transfer means coupled to the applicator roller means for rotating the
at least one applicator roller.

Claim 9, lines 9 and 14, change "inking/coating" to --inking or coating--.

Cancel Claim 10.

11. (Amended) A printing press comprising, in combination:
a printing unit;

at least one cylinder mounted for rotation in the printing unit for printing ink
or coating material onto a substrate transferring through said printing unit;

inking or [/] coating apparatus having container means for containing liquid
ink or coating material, first and second [a] rotatable applicator rollers [roller] and
means for applying liquid ink or coating material from the container means to a
peripheral surface portion of the applicator rollers [roller]; and

support means mounted on the printing unit, said inking or [/] coating
apparatus being movably coupled to the support means for movement to an operative
on-impression position in which one of said [the] applicator rollers [roller] is
engagable with a plate or a blanket mounted on said at least one cylinder, and for
movement to an off-impression position in which the inking or [/] coating apparatus
is retracted away from said at least one cylinder.

12. (Amended) A printing press as defined in Claim 11, wherein the
container means comprises a doctor blade assembly having a reservoir or fountain
pan for supplying ink or coating material to each of said applicator rollers [the
applicator roller], and having a doctor blade disposed for wiping engagement with
each of said applicator rollers [the applicator roller] when it is received in rolling
contact with ink or coating material in the reservoir or pan.

13. (Amended) A printing press as defined in Claim 11, wherein the
container means comprises a fountain pan and the inking applying means comprises
a pan roller for transferring ink or coating material from the fountain pan to said
first and second applicator rollers [the applicator roller].

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14. (Amended) A printing press [unit] having a printing unit of the type having a delivery side and a dampener side, said dampener side for receiving a dampener, comprising, in combination:

a plate cylinder mounted on the printing unit between the delivery side and the dampener side, and a printing plate mounted on the plate cylinder;

a blanket cylinder having an ink or coating receptive blanket disposed in ink or coating transfer engagement with the plate for transferring ink or coating material from the image surface areas of the printing plate to the ink or coating receptive blanket;

an impression cylinder disposed adjacent the blanket cylinder thereby forming a nip between the blanket and the impression cylinder whereby the printing ink or coating material is transferred from the blanket to a substrate as the substrate is transferred through the nip;

support means mounted on the dampener side of the printing unit; and

inking or [/] coating apparatus for applying ink or coating material to the plate or to the blanket, the inking or [/] coating apparatus being pivotal [movably] coupled to the support means for pivotal movement to an operative, on-impression position in which the inking or [/] coating apparatus is engagable with the plate or the blanket, and for movement to an off-impression position in which the inking or [/] coating apparatus is retracted and disengaged from the plate and blanket, the inking or coating apparatus being positioned in the dampener space in place of a dampener.

15. (Amended) The invention is defined in Claim 14 wherein the plate cylinder, blanket cylinder, impression cylinder and inking or coating apparatus forms a first printing unit, the printing press having a second printing unit for printing or coating the substrate subsequently to the first printing unit, the printing press further including:

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a dryer mounted on the printing press [unit] for discharging heated air onto a freshly printed or coated substrate from the first printing unit before the freshly printed or coated substrate is subsequently printed, coated or otherwise processed in the second printing unit.

Claim 16, line 1, change "Claim 14" to --Claim 15--.

Claim 17, line 1, change "Claim 14" to --Claim 15--.

18. (Amended) The invention is defined in Claim 14 wherein the printing press has an interunit position, comprising:

a transfer cylinder disposed in the [and] interunit position on the press and coupled in sheet transfer relation with the impression cylinder; and

an interunit dryer disposed adjacent the transfer cylinder for discharging heated air onto a freshly printed or coated substrate after it has been transferred from the impression cylinder and while it is in contact with the transfer cylinder.

19. (Amended) A printing press as defined in Claim 14 wherein the plate cylinder, blanket cylinder, impression cylinder, support means and inking or coating apparatus form a first printing unit, the printing press having a second printing unit including a plate cylinder, a blanket cylinder and an impression cylinder, further including:

a transfer drum coupled in substrate transfer relation with the impression cylinder of the first printing unit [a first printing unit] and in substrate transfer relation with the impression cylinder of the second printing unit [a second printing unit];

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a first dryer mounted adjacent the impression cylinder of the first printing unit for discharging heated air onto a freshly printed or coated substrate while the substrate is in contact with the impression cylinder of the first printing unit;

a second dryer mounted adjacent the transfer drum for discharging heated air onto a freshly printed or coated substrate after it has been transferred from the impression cylinder of the first printing unit and while it is in contact with the transfer cylinder; and,

a third dryer disposed adjacent the impression cylinder of the second printing unit for discharging heated air onto a freshly printed or coated substrate after it has been transferred from the transfer drum and while it is in contact with the impression cylinder of the second printing unit.

20. (Amended) In a printing press of the type having first and second side frame members providing support for a printing unit in which a blanket cylinder is disposed between the delivery side and the dampener side of the printing unit, the improvement comprising:

support means mounted on the side frame members on the dampener side of the printing unit;

inking or [/] coating apparatus for applying ink or a coating material to a blanket mounted on the blanket cylinder when the inking or [/] coating apparatus is in the operative on-impression position; and,

the inking or [/] coating apparatus [being] pivotally coupled to the support means on the dampener side for movement to an [the] operative position in which the inking or [/] coating apparatus is supported laterally adjacent to the blanket cylinder, and to an off- impression position in which the inking or [/] coating apparatus is retracted away from the blanket cylinder.

Claim 21, lines 3, 5 and 8, change "inking/coating" to -- inking or coating--.

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Claim 23, lines 4, 7 and 9, change "inking/coating" to -- inking or coating--.

Claim 24, lines 4 and 6, change "inking/coating" to -- inking or coating--.

Claim 25, line 2, change "inking/coating" to -- inking or coating--.

Claim 27, line 6, change "reservoir" to --container--.

Claim 27, lines 6, 8 and 9, change "inking/coating" to -- inking or coating--.

Claim 28, line 2, change "inking/coating" to -- inking or coating--.

31. (Amended) A printing press as defined in any one of Claims 1, 11, 14 or 20, wherein the means for applying ink or coating material comprises an applicator roller, and the inking or [/] coating apparatus is pivotally mounted on the printing unit in a position in which the nip contact point between the applicator roller and a blanket or plate is offset with respect to a radius line projecting through the center of the plate cylinder or blanket cylinder to the axis of pivotal motion of the inking or coating apparatus [of rotation of a printing/coating unit].

REMARKS

This is a response to the office action mailed January 9, 1997. In that office action, Claims 1-31 were rejected under 35 USC §112, second paragraph, as indefinite. A substantial number of amendments have been made to the claims including many of the suggestions made by the Examiner. The claims are therefore believed to presently satisfy the requirements of this section.

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Applicants respectfully disagree with certain of the Examiner's suggestions. For example, in Claim 1, the inking or coating apparatus is capable of applying ink or coating material to a plate mounted on the plate cylinder, or to a plate or blanket mounted on the blanket cylinder, either separately or simultaneously. This is not believed indefinite because the construction of the inking or coating apparatus is such that it can be used in three aspects, i.e., (A) to apply ink or coating material to a plate on the plate cylinder, or (B) to a plate or blanket on the blanket cylinder or, (C) to simultaneously apply ink or coating material to both a plate mounted on the plate cylinder and a plate or blanket mounted on the blanket cylinder. As will be described hereinafter, none of the prior art references cited can achieve this triple function.

The blanket cylinder can mount as its exposed surface either a plate or a blanket, not both and this is also definite. The present inking or coating apparatus can apply ink or coating material to the plate or blanket on the blanket cylinder depending on how the blanket cylinder is wrapped. Throughout the claims, a plate or a blanket may be referred to as being applied to the blanket cylinder, depending on a particular configuration.

With regard to the recitation of dampener space and dampener side and delivery side, the specification clearly sets forth that a printing unit commonly has a side on which the dampener is mounted and a side from which the printed or coated substrate is delivered after printing or coating. These are well established configurations in the printing industry and a significant novel aspect of the present invention is the ability to mount the inking or coating apparatus in the space normally occupied by the dampener so that major reconfiguration or reconstruction of a printing press is not needed. In this industry, a press owner is very reluctant to make substantial and significant permanent changes to a printing press because the press is such a large investment and is intended to last for such a long time. It is

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highly desirable to design an apparatus such as the present invention to work with preexisting press designs.

Applicants also respectfully disagree with the Examiner's rejection of Claims, 3, 25 and 26 under 35 USC § 112, first paragraph. In the Examiner's argument, no adequate disclosure is made as to what roller structure and roller fabrication is meant by "an anilox roller having a resilient transfer surface." However, page 28, lines 3-7 of the Application states "[w]hen the applicator roller 66 is applied to the plate, it is preferably constructed as an anilox roller having a resilient, compressible transfer surface. Suitable resilient roller surface materials include Buna N synthetic rubber and EPDM (terpolymer elastomer)." Therefore, Applicants believe this feature is adequately described.

Claims 1, 10, and 14-17 were rejected under 35 USC § 102 as anticipated by, or in the alternative, under 35 USC § 103 as obvious over U.S. Pat. No. 4,841,903 to Bird. Claim 1 recites the fact that the invention claimed therein includes an inking or coating apparatus which has the capability of applying ink or coating material to a plate mounted on the plate cylinder, or to a plate or blanket mounted on the blanket cylinder, either separately or simultaneously. This requires the ability to mount multiple devices, such as two separate applicator rollers 66 and 67, to contact both the plate cylinder and blanket cylinder simultaneously. Bird does not disclose such a feature, having only a single applicator roller 33. Further, both Claims 1 and 14 have been amended to recite the fact that the inking or coating apparatus is positioned in the area or space in which the dampener would normally occupy, thereby allowing the present invention to be practically usable in existing press designs. Bird does not disclose this feature either. The claimed design allows the operator to still have access to the printing, blanket and impression cylinders and to the interunit space.

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Claims 2, 7, 11-13, 28/1, 28/11 and 28/14 were rejected under 35 USC § 103 over Bird in view of U.S. Pat. No. 4,685,414 to DiRico. The claims can be distinguished from Bird for the reasons set forth above. Claim 11, for example, specifically claims use of first and second applicator rollers. DiRico mounts a device on the inking side of a press unit, not the dampener side as presently claimed and cannot use dual applicator rollers.

Claims 3, 25 and 26 were rejected under 35 USC § 103 as unpatentable over Bird, DiRico and further in view of each of U.S. Pat. No. 3,360,393 to Rhorer and U.S. Pat. No. 2,531,036 to Goettsch. The Bird and DiRico patents can be distinguished for the reasons above. Rhorer discloses a paper making machine, not a printing or coating device, which has a cylindrical roller pin with a resilient peripheral surface having discrete indentations 10a. The intent of the Rhorer device is to produce relatively rough, uneven paper, as set forth in column 4, lines 9-13. Therefore, it is believed that one of ordinary skill in the art of the present invention would not look to the Rhorer patent. The Goettsch patent is similarly unrelated in primarily being designed for the application of a glue to a cardboard material. The pockets 18 in the peripheral portion 17 of the roller 12 are designed to apply discrete bands of adhesive to the cardboard. Again, one of ordinary skill in the art of the present invention would not look to Goettsch.

Claims 4-6, 20, 22, 23, 24, 31/1, 31/20 and 31/14 were rejected under 35 USC § 103 over Bird in view of U.S. Pat. No. 4,889,051 to Sarda. Bird is distinguished for the reasons set forth above. Further, Sarda does not have the capability of applying applicator rollers simultaneously to a plate cylinder and a blanket cylinder. Also, Sarda does not provide for use on the dampener side, which, in fact, is occupied by the dampener 2B illustrated in Fig. 1 of the Sarda

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patent. Sarda also does not disclose the structure of Claim 31, mentioning nothing about the radius between cylinders and a pivot axis and a nip point.

Claim 31/11 was rejected under 35 USC § 103 as unpatentable over Bird, DiRico and Sarda. The distinctions over the prior art discussed previously are applicable here as well.

Claims 18 and 19 were rejected under 35 USC § 103 over Bird in view of U.S. Pat. No. 5,115,741 to Rodi. Bird is distinguished for the reasons set forth above. Therefore, the addition of Rodi is insufficient to maintain the present rejection.

Claim 28/20 was rejected under 35 USC § 103 over Bird in view of Sarda and DiRico. The distinctions noted above for these references are applicable here as well.

Claims 29/1 and 29/14 are rejected under 35 USC § 103 over Bird and U.S. Pat. No. 5,178,678 to Koehler. The distinctions over Bird are applicable here. Koehler does not overcome the shortcomings of the Bird reference in the rejection of the present claims.

Claim 29/11 is rejected under 35 USC § 103 over Bird, DiRico and Koehler. The distinctions over the references described previously are applicable here as well.

Claim 29/20 was rejected under 35 USC § 103 over Bird, Sarda and Koehler. The distinctions over the prior art discussed above are applicable here as well.

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Claim 27/1 is rejected under 35 USC § 103 over Bird, in view of U.S. Pat. No. 5,280,750 to Yoshida. Yoshida does not overcome the shortcomings of the Bird reference described previously.

Claim 27/11 was rejected under 35 USC § 103 over Bird, DiRico and Yoshida. This claim is distinguished over these references for the reasons set forth above.

Claim 27/14 was rejected under 35 USC § 103 over Bird and Yoshida. This claim is distinguished over these references for the reasons set forth above.

Claim 27/20 was rejected under 35 USC § 103 as unpatentable over Bird in view of Sarda and Yoshida. This claim is patentable over these references for the reasons set forth above.

As this amendment is filed within the third month extension after expiration of the shortened three month period for response, a three month extension fee in the amount of \$465 is enclosed herewith. Any additional fees for the proper filing amendment, including any additional extension fees required under Rule 136, should be withdrawn from Sidley & Austin deposit account 18-1260.

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Respectfully submitted,

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Office Action Summary

Application No.
08/538,422

Applicant(s)
Howard W. Demoore et al

Examiner
J R Fisher

Group Art Unit
3307



☒ Responsive to communication(s) filed on Jul 14, 1997

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire THREE month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-9 and 11-31 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-9 and 11-31 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been received.

received in Application No. (Series Code/Serial Number) _____

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☐ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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The specification does not include referencing data with respect to Serial No. 08/435,798 (referenced in the declaration).

* **Claims 1-9, 25, 26, 27/1, 28/1, 29/1, 30/1, 20-24, 27/20, 28/20, 29/20, 30/20, 29/11, 31/1, 31/11, 31/20 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

In claim 1, line 9, there is no antecedent for "the dampener space".

In claim 1, line 7, it would appear that "adopted" was meant to be --- adapted ---.

The following recitations lack antecedent basis in the claims:

"...the delivery side..."(cl. 20);

"...the dampener side..." (cl. 20);

"...the blanket cylinder..." (cl. 29/11, 29/20, 31/11)

"...plate..."(line 5) and "...the plate cylinder..." (line 6) (cl. 31/20)

In claim 31 there is no antecedent for "of pivotal motion of the inking or coating apparatus..."

* **Claims 1-9, 25, 26, 27/1, 28/1, 29/1, 30/1, 31/1, 31/11, 14-19, 27/14, 28/14, 29/14, 30/14, 31/14, 20-24, 27/20, 28/20, 29/20, 30/20, 31/20 are rejected under 35 U.S.C. § 112, second paragraph, and 35 U.S.C. § 101.**

Applicants state that claims 1 and 14 have been amended to recite the fact that the inking or coating apparatus is positioned in the area or space in which the dampener

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would normally occupy. With respect to claim 20, Applicants also contend that the prior art "...does not provide for use on the dampener side..."

A review of the claim language reveals that the claims inferentially recite a dampener ("..having a dampener position for accommodating a dampener when a dampener is used..."; "...said dampener side for receiving a dampener..."). The claim format then defines the apparatus in terms of a method step involving that dampener, i.e., ("...apparatus being positioned in the dampener space in place of a dampener..."; "...inking or coating apparatus movably coupled to the printing unit in the dampener space..."). The claims are indefinite as to whether a dampener is meant to be part of the claimed combination. To claim an apparatus in terms of some structure which might exist, or might have existed, but no longer exists, and then to purport to further define the apparatus in terms of a step of placing some other structure at a location where that existing or nonexisting structure is located makes the claims indefinite as to meaning, scope and interpretation. The claims purport to define a structural member in terms of a nonexisting member and in terms of a method step involving a nonexisting member.

Further, the claims improperly define an apparatus in terms of a method step. This acts to confuse and improperly combine two statutory classes of invention and makes the claims indeterminate as to scope, interpretation, and meaning. The claims are indefinite as failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The metes and bounds of the invention are not clear

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since the claims appear indefinite as to structure and they confuse and improperly combine two statutory categories of invention. Ex parte Lyell, 17 USPQ2d 1548.

* **Claims 1-9, 25, 26, 27/1, 28/1, 29/1, 30/1, 31/1 are rejected under 35 U.S.C. 112, first paragraph**, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

In claim 1, the recitation in the last four lines is not supported by an enabling disclosure. This recitation encompasses means for applying ink or coating material to a plate mounted on the plate cylinder **simultaneously** with applying ink or coating material to a plate mounted on the blanket cylinder. It also encompasses means for applying ink or coating material to a plate and to a blanket on a single cylinder ("simultaneously"), i.e, the inference being that the cylinder may support both a plate and a blanket. It is not apparent how and by what means the fluid material can be applied to a plate mounted on the plate cylinder **simultaneously** with material being applied to a plate mounted on the blanket cylinder. In this respect, it is not apparent how and by what manner a plate on a plate cylinder coacts with a plate mounted on a blanket cylinder. Further, the recitation of "simultaneously" implies that both a blanket and a plate are operatively mounted on a single blanket cylinder. This rejection is necessitated by claim amendment and applicants' remarks in the instant amendment which states that the claim encompasses an apparatus "...to simultaneously apply ink or coating material to both a plate mounted on

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the plate cylinder and plate or blanket mounted on the blanket cylinder..." It is noted that the specification teaches that when a plate is mounted on the blanket cylinder "...a plate is not mounted on the plate cylinder.." (specification, page 14). Further, there is no disclosure as to how and in what manner both a blanket and a plate are operatively mounted on a single blanket cylinder.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

* **Claims 1, 14-17 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Bird (4,841,903).** Bird (4,841,903) discloses an inking or coating apparatus for applying ink or coating material to a plate mounted on a plate cylinder or to a blanket mounted on the blanket cylinder and including a carriage assembly having a support arm that is movable to an operative position in which the inking or coating apparatus is suspended laterally adjacent to the plate and blanket cylinders and being movable to a retracted position in which the inking or coating apparatus is elevated with respect to the plate and blanket cylinders. The structure as positively and meaningfully claimed is readable on the same as disclosed by Bird '903. Further, the disclosure in Bird '903 is considered to be the obvious functional

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and structural equivalent to the claimed subject matter insofar as the claims are supported and are enabled by meaningful structure. With respect to claims 14 and 17, Bird (4,841,903) discloses a dryer 25 mounted adjacent the impression cylinder for discharging heated air onto a freshly printed substrate and an extractor 28 coupled to the dryer for extracting hot air and moisture from an exposure zone.

Applicants' remarks have been carefully considered, but are not persuasive to overcome the reasons for rejection. Applicants contend that claim 1 (last four lines) recites the language "simultaneously" and that such requires the ability to mount multiple devices, such as two separate applicator roller 66 and 67, to contact both the plate cylinder and blanket cylinder simultaneously. Applicants contend that Bird does not disclose such a feature, having only a single applicator roller 33. These remarks appear more specific than that which is broadly required by the claim language. The claim language recites the "simultaneously" operation in **alternative language**. The claim language has been formatted in **alternative language** so that **at least one** of the functions is necessary, not all, when consideration is made with respect to structurally defining over the prior art. Accordingly, relative to this alternative language, all that is necessary is that the prior art disclose inking or coating apparatus for applying ink or coating material to a plate mounted on a plate cylinder or to a blanket mounted on the blanket cylinder. That is disclosed by Bird.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

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obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

* **Claims 2, 7, 28/1, 28/14 are rejected under 35 U.S.C. 103(a)** as being unpatentable over Bird (4,841,903) in view of DiRico (4,685,414). Bird (4,841,903) further discloses an applicator roller for contacting either the plate cylinder or the blanket cylinder. DiRico (4,685,414) is applied to show conventional applicator structure comprising a doctor blade and applicator roller in fluid communication with a fluid reservoir. It would have been obvious to one having ordinary skill in the art at the time the invention was made to broadly utilize conventional doctor blade and applicator roller structure in Bird (4,841,903), for example in view of the teaching exemplified by DiRico (4,685,414), if in fact such is not inherent in Bird (4,841,903). The motivation would have involved merely the selection of equivalent fluid application components so as to obtain the expected and desired function therein.

* **Claims 11-13, 28/11 are rejected under 35 U.S.C. 103(a)** as being unpatentable over Bird (4,841,903) in view of DiRico (4,685,414) as applied to claim 2, above, further in view of Koehler et al (5,178,678). Koehler et al teaches the conventional expedient of using plural applicator rollers (first and second applicator rollers) in a printing and coating environment. It would have been obvious to one having ordinary

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skill in the art at the time the invention was made to broadly utilize first and second applicator roller in Bird, as applied, in view of the teaching of the same in Koehler et al. The motivation for the combining of the references would have involved merely that which flows from the substitution of equivalent fluid applicator roller systems so as to obtain the expected and desired results therefrom.

* **Claims 3, 25, 26 are rejected under 35 U.S.C. 103(a)** as being unpatentable over Bird (4,841,903) in view of DiRico (4,685,414), as applied to claim 2, above, further in view of each of Rhorer (3,360,393) and Goettsch (2,531,036). It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a conventional resilient surface on the anilox applicator roller in Bird (4,841,903), as applied, especially in view of each of Rhorer (3,360,393) and Goettsch (2,531,036) who each discloses that it is old to utilize a resilient transfer surface on an anilox type applicator roller. The motivation would have been so as to obtain the desired fluid function from the use of a resilient transfer surface. Applicants contend that Rhorer discloses a paper making machine, not a printing or coating device. A review of the Rhorer patent, which is classified in the coating art, indicates that its disclosure is in fact directed to a coating device. Further, Rhorer even teaches that his fluid coating device is similar to fluid application in a printing system (col. 4). Applicants further state that the Goettsch patent is similarly unrelated. It is noted that the Goettsch patent is also classified in the coating art and its disclosure is also directed to a coating device.

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Art Unit 3307

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* **Claims 4-6, 20, 22, 23, 24, 31/1, 31/20, 31/14 are rejected under 35 U.S.C. 103(a)** as being unpatentable over Bird (4,841,903) in view of Sarda (4,889,051). Bird (4,841,903) discloses an inking or coating apparatus for applying ink or coating material to a plate mounted on a plate cylinder or to a blanket mounted on the blanket cylinder and including a carriage assembly having a support arm that is movable to an operative position in which the inking or coating apparatus is suspended laterally adjacent to the plate and blanket cylinders and being movable to a retracted position in which the inking or coating apparatus is elevated with respect to the plate and blanket cylinders. Sarda (4,889,051) discloses a carriage assembly including a support arm having a first end portion pivotally coupled to a printing unit tower and a second end portion pivotally coupled to an inking apparatus, the carriage assembly being movable to an operative position in which the inking apparatus is suspended laterally adjacent to the plate and blanket cylinder and being movable to a retracted position in which the ink apparatus is elevated with respect to the plate and blanket cylinders. It would have been obvious to one having ordinary skill in the art at the time the invention was made to broadly utilize a carriage assembly apparatus such as exemplified by Sarda (4,889,051) for providing the interrupting and engagement movements for the carriage assembly in Bird (4,841,903). The motivation would have involved merely the desire to obtain the expected and desired motion and movement capability of the assembly as disclosed by Sarda (4,889,051). With respect to claim 5, Sarda (4,889,051) discloses a power actuator

29. Applicant contends that Sarda does not have the capability of applying applicator rollers simultaneously to a plate cylinder and a blanket cylinder. The claim language recites the "simultaneously" operation in **alternative language**. The claim language has been formatted in **alternative language** so that **at least one** of the functions is necessary, not all, when consideration is made with respect to structurally defining over the prior art. Accordingly, relative to this alternative language, all that is necessary is that the prior art disclose inking or coating apparatus for applying ink or coating material to a plate mounted on a plate cylinder or to a blanket mounted on the blanket cylinder. This is disclosed by Bird. With respect to the amended language in Claim 31, Sarda does depict a an inking apparatus which is pivotally mounted on the printing unit in a position in which the nip contact point between the applicator roller and plate is offset with respect to a radius line projecting through the center of the plate cylinder to the axis of pivotal motion of the inking apparatus.

* **Claims 31/11 is rejected under 35 U.S.C. 103(a)** as being unpatentable over Bird (4,841,903) in view of DiRico (4,685,414) and Koehler et al (5,178,678) as applied to claim 11, further in view of Sarda (4,889,051). Bird (4,841,903) discloses an inking or coating apparatus for applying ink or coating material to a plate mounted on a plate cylinder or to a blanket mounted on the blanket cylinder and including a carriage assembly having a support arm that is movable to an operative position in which the inking or coating apparatus is suspended laterally adjacent to the plate and blanket

Serial No. 08/538422

-11-

Art Unit 3307

TELETYPE UNIT
cylinders and being movable to a retracted position in which the inking or coating apparatus is elevated with respect to the plate and blanket cylinders. Sarda (4,889,051) discloses a carriage assembly including a support arm having a first end portion pivotally coupled to a printing unit tower and a second end portion pivotally coupled to an inking apparatus, the carriage assembly being movable to an operative position in which the inking apparatus is suspended laterally adjacent to the plate and blanket cylinder and being movable to a retracted position in which the ink apparatus is elevated with respect to the plate and blanket cylinders. It would have been obvious to one having ordinary skill in the art at the time the invention was made to broadly utilize a carriage assembly apparatus such as exemplified by Sarda (4,889,051) for providing the interrupting and engagement movements for the carriage assembly in Bird (4,841,903). The motivation would have involved merely the desire to obtain the expected and desired motion and movement capability of the assembly as disclosed by Sarda (4,889,051). With respect to claim 5, Sarda (4,889,051) discloses a power actuator 29.

* **Claims 18, 19 are rejected under 35 U.S.C. 103(a)** as being unpatentable over Bird (4,841,903) in view of Rodi (5,115,741). It would have been obvious to one having ordinary skill in the art at the time the invention was made to place the dryer devices in Bird (4,841,903) at any desired location including at a location disposed adjacent to the transfer cylinder for discharging heated air onto a freshly printed or coated substrate; for example, if such were desired in addition to the locations defined therein. This is

Serial No. 08/538422

-12-

Art Unit 3307

especially so in view of Rodi (5,115,741) who teaches that it is conventional to locate a dryer adjacent to a transfer cylinder. The motivation would have involved merely the selection of conventional dryer locations so as to obtain the expected function therefrom.

* **Claims 28/20 are rejected under 35 U.S.C. 103(a)** as being unpatentable over Bird (4,841,903) in view of Sarda as applied to claim 20 above, further in view of DiRico (4,685,414). Bird (4,841,903) further discloses an applicator roller for contacting either the plate cylinder or the blanket cylinder. DiRico (4,685,414) is applied to show conventional applicator structure comprising a doctor blade and applicator roller in fluid communication with a fluid reservoir. It would have been obvious to one having ordinary skill in the art at the time the invention was made to broadly utilize conventional doctor blade and applicator roller structure in Bird (4,841,903), for example such as exemplified by DiRico (4,685,414), if in fact such is not inherent in Bird (4,841,903). The motivation would have involved merely the selection of equivalent fluid application components so as to obtain the expected and desired function therein.

* **Claims 29/1, 29/14 are rejected under 35 U.S.C. 103(a)** as being unpatentable over Bird (4,841,903) in view of Koehler (5,178,678). It would have been obvious to one having ordinary skill in the art at the time the invention was made to broadly utilize a plate on the blanket cylinder in Bird '903 for the reasons as taught by Koehler.

* **Claim 29/11 is are rejected under 35 U.S.C. 103(a)** as being unpatentable over Bird (4,841,903) in view of DiRico (4,685,414) and Koehler et al (5,178,678), as

Serial No. 08/538422

-13-

Art Unit 3307

applied to claim 11, further in view of Koehler (5,178,678). It would have been obvious to one having ordinary skill in the art at the time the invention was made to broadly utilize a plate on the blanket cylinder in Bird '903 for the reasons as taught by Koehler.

* **Claims 29/20 is rejected under 35 U.S.C. 103(a)** as being unpatentable over Bird (4,841,903) in view of Sarda (4,889,051) as applied to claim 20, further in view of Koehler (5,178,678). It would have been obvious to one having ordinary skill in the art at the time the invention was made to broadly utilize a plate on the blanket cylinder in Bird '903 for the reasons as taught by Koehler.

* **Claim 27/1 is are rejected under 35 U.S.C. 103(a)** as being unpatentable over Bird (4,841,903) in view of Yoshida et al (5,280,750). Yoshida et al (5,280,750) discloses the conventional expedient of utilizing a circulation and heat exchange system for the fluid supply material in a printing press. It would have been obvious to one having ordinary skill in the art at the time the invention was made, having the teachings of Yoshida et al, to utilize a circulation system with heat exchanger for the fountain fluid in Bird. The motivation would have involved the reasons as disclosed by Yoshida et al.

* **Claim 27/11 is are rejected under 35 U.S.C. 103(a)** as being unpatentable over Bird (4,841,903) in view of DiRico (4,685,414) and Koehler et al (5,178,678). as applied to claim 11, further in view of Yoshida et al (5,280,750). Yoshida et al (5,280,750) discloses the conventional expedient of utilizing a circulation and heat exchange system for the fluid supply material in a printing press. It would have been

Serial No. 08/538422

-14-

Art Unit 3307

obvious to one having ordinary skill in the art at the time the invention was made, having the teachings of Yoshida et al, to utilize a circulation system with heat exchanger for the fountain fluid in Bird. The motivation would have involved the reasons as disclosed by Yoshida et al.

* **Claim 27/14 is are rejected under 35 U.S.C. 103(a)** as being unpatentable over Bird (4,841,903) in view of Yoshida et al (5,280,750). Yoshida et al (5,280,750) discloses the conventional expedient of utilizing a circulation and heat exchange system for the fluid supply material in a printing press. It would have been obvious to one having ordinary skill in the art at the time the invention was made, having the teachings of Yoshida et al, to utilize a circulation system with heat exchanger for the fountain fluid in Bird. The motivation would have involved the reasons as disclosed by Yoshida et al.

* **Claims 27/20 is rejected under 35 U.S.C. 103(a)** as being unpatentable over Bird (4,841,903) in view of Sarda (4,889,051) as applied to claim 20, further in view of Yoshida et al (5,280,750). Yoshida et al (5,280,750) discloses the conventional expedient of utilizing a circulation and heat exchange system for the fluid supply material in a printing press. It would have been obvious to one having ordinary skill in the art at the time the invention was made, having the teachings of Yoshida et al, to utilize a circulation system with heat exchanger for the fountain fluid in Bird. The motivation would have involved the reasons as disclosed by Yoshida et al.

Serial No. 08/538422

-15-

Art Unit 3307

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for response to this final action is set to expire **THREE MONTHS** from the date of this action. In the event a first response is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event will the statutory period for response expire later than **SIX MONTHS** from the date of this final action.


J. REED FISHER
PRIMARY EXAMINER
ART UNIT 3307

703 308-0525
October 23, 1997

Any inquiry concerning this communication should be directed to J. R. Fisher whose telephone number is 703 308-0525. The examiner can normally be reached Monday - Thursday from 7:30 AM to 6:00 PM. The fax phone number for Group 3300 is (703) 308-3590. Communications via Internet e-mail regarding this application, other than those under 35 U.S.C. 132 or which otherwise require a signature, may be used by the applicant and should be addressed to [edgar.burr@uspto.gov]. All Internet e-mail communications will be made of record in the application file. PTO employees do not engage in Internet communications where there exists a possibility that sensitive information could be identified or exchanged unless the record includes a properly signed express waiver of the confidentiality requirements of 35 U.S.C. 122. This is more clearly set forth in the Interim Internet Usage Policy published in the Official Gazette of the Patent and Trademark on February 25, 1997 at 1195 OG 89.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0858.

11178\10801



1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Howard W. DeMoore, et al.

Serial No.: 08/538,422

Filed: October 2, 1995

Group Art Unit: 3307

Examiner: J. Fisher

For:

RETRACTABLE PRINTING/COATING UNIT OPERABLE ON
THE PLATE AND BLANKET CYLINDERS SIMULTANEOUSLY
FROM THE DAMPENED SIDE OF THE FIRST PRINTING UNIT
OR ANY CONSECUTIVE PRINTING UNIT OF ANY ROTARY
OFFSET PRINTING PRESS

Box: AF
Assistant Commissioner
For Patents
Washington, D.C. 20231

I hereby certify that this correspondence is being deposited with the United States Postal
Service as first class mail in an envelope addressed to: Box AF, Assistant Commissioner for
Patents, Washington, D.C. 20231 on
January 28, 1998
Date of Deposit

William R. Gustavson, Registration No. 29,160
Name of Applicant, Assignee, or
Registered Representative

Signature
Date of Signature January 28, 1998

Dear Sir:

NOTICE OF APPEAL

Applicants hereby appeal from the Final Rejection mailed October 28, 1997. The claims

appealed are Claims 1-9, 11-26 and 27(1), 27(11), 27(14), 27(20), 28(1), 28(11), 28(14), 28(20),
29(1), 29(11), 29(14), 29(20), 30(1), 30(11), 30(14), 30(20), 31(1), 31(11), 31(14), 31(20)

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#10

Appeal
Notice

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2

Enclosed is a filing fee of \$155.00. Any additional fees necessary for the proper filing of this Notice of Appeal, including any additional fees under Rule 136, should be withdrawn from Sidley & Austin Deposit Account 18-1260.

Respectfully submitted,



William R. Gustavson
Registration No. 29,160

WRG/jk
January 28, 1998
SIDLEY & AUSTIN
4500 Renaissance Tower
1201 Elm Street
Dallas, Texas 75270-2197
(214) 981-3300
ODMA\PCDOCS\DALLAS\63761

TOP SECRET

11178/10801

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

HOWARD W. DEMOORE, ET AL

Serial No. 08/538,422

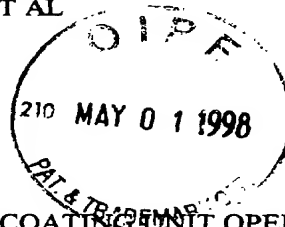
Filing Date: 02-Oct-95

Group Art Unit: 3307

Examiner: J. Fisher

For: RETRACTABLE PRINTING/COATING UNIT OPERABLE ON THE
PLATE AND BLANKET CYLINDER SIMULTANEOUSLY FROM
THE DAMPENER SIDE OF THE FIRST PRINTING UNIT OR ANY
CONSECUTIVE PRINTING UNIT OF ANY ROTARY OFFSET
PRINTING PRESS

Assistant Commissioner for Patents
Washington D.C. 20231



#11
Chang
Adler
5-19-98
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MAY 11 1998

GPO 1 100

Dear Sir:

NOTICE OF CHANGE OF CORRESPONDENCE ADDRESS

Please change the correspondence address for the above-identified patent application.

From the old address of:

Sidley & Austin
1201 Elm Street, Suite 4500
Dallas, Texas 75270-2197
(214) 981-3300 phone
(214) 981-3400 fax

To the new address of:

Sidley & Austin
717 North Harwood, Suite 3400
Dallas, Texas 75201
(214) 981-3300 phone (Main)
(214) 981-3306 phone (Direct)
(214) 981-3400 Fax

Please direct all subsequent correspondence to the new address.

Respectfully submitted,

James P. Bradley
Registration No. 27,537

JPB:wpc
April 1, 1998
717 North Harwood, Suite 3400
Dallas, Texas 75201
(214) 981-3300

March 19, 1998 (9:42am)

THE "GREAT" BOOK

U.S. PATENT & TRADEMARK OFFICE
JUL 13 1998

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(PRSH B8925)

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PATENT AB

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Howard W. DeMoore, et al.

Serial No.: 08/538,422

Filed: October 2, 1995

Group Art Unit: 3307

Examiner: J. Fisher

For: Retractable. Printing/Coating Unit Operable on the Plate and Blanket
Cylinders Simultaneously from the Dampener Side of the First Printing
Unit or any Consecutive Printing Unit or any Rotary Offset Printing Press

Assistant Commissioner
for Patents
Washington, DC 20231

I hereby certify that this correspondence is being deposited
with the United States Postal Service with sufficient postage as
first class mail, in an envelope addressed to: Assistant
Commissioner for Patents, Washington, DC 20231

July 8, 1998
(Date of Deposit)
Dorothy Harris

Sir:

**Revocation of Previous Powers of Attorney
and Appointment of New Attorneys**

I, Howard W. DeMoore, as assignee of the entire interest in the above identified application, by virtue of an assignment recorded at Reel 8001, Frames 994-997, hereby revoke all previous powers of attorney given in said application; and hereby appoint **William D. Harris, Jr.**, Registration No. 19,243; and **Michael W. Piper**, Registration No. 39,800; of the firm of **LOCKE PURNELL RAIN HARRELL, P.C.**, my attorneys to prosecute this application and

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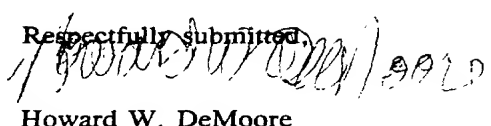
to transact all business in the Patent and Trademark Office connected therewith. I request that all correspondence be addressed to:

LOCKE PURNELL RAIN HARRELL, P.C.
Attention: Intellectual Property Section
2200 Ross Avenue
Suite 2200
Dallas, Texas 75201

Please direct telephone calls to:

William D. Harris, Jr.
Direct Telephone: 214/740-8572
Main Telephone: 214/740-8000
Facsimile: 214/740-8800

Respectfully submitted,



Howard W. DeMoore

Date: 5/11/98

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
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JUL 28 1998

GROUP 3200

Serial Number: 08/538,422
Filing Date: October 2, 1995
Applicant: Howard W. DeMoore, et al.

Title: Retractable Printing/Coating Unit Operable on the Plate and Blanket
Cylinders Simultaneously from the Dampener Side of the First Printing
Unit or any Consecutive Printing Unit or any Rotary Offset Printing Press

Group Art Unit: 3307

Examiner: J. Fisher

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JUL 29 1998

GROUP 2500

Assistant Commissioner of Patents
Washington, D. C. 20231

I hereby certify that this correspondence is being deposited
with the United States Postal Service with sufficient postage
as first class mail in an envelope addressed to:
Assistant Commissioner of Patents,
Washington, D.C. 20231 on 7/19/98
(Date of Deposit)

John Brown

Sir:

APPOINTMENT OF ASSOCIATE ATTORNEY

Please recognize the following as my associates, with full power of substitution and
revocation, to transact all business in the United States Patent and Trademark Office connected
with the above-identified matter and any patent or registration issued thereon:



**UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office**

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/538,422	10/02/95	DEMORE	11/98/Fish1

SIDLEY & AUSTIN
717 NORTH HARWOOD
SUITE 3400
DALLAS TX 75201

MM11/0731

EXAMINER FISHER, J

ART. UNIT 2854	PAPER NUMBER
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DATE MAILED: 07/31/98

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Defective Notice of Appeal or BriefApplication No.
08/538,422Applicant(s)
Howard W. Demoore et alExaminer
J R FisherGroup Art Unit
2854☐ The Notice of Appeal filed on _____ is:☐ not acceptable because:

it was not timely filed.

the statutory fee for filing the appeal was not submitted. See 37 CFR 1.17(b).

the appeal fee received on _____ was not timely filed.

the submitted fee of \$ _____ is insufficient. The appeal fee required by 37 CFR 1.17(b) is \$ _____.

the appeal is not in compliance with 37 CFR 1.191 in that there is no record of a second or a final rejection in this application.

a Notice of Allowability, form PTO-37, was mailed by the Office on _____.

☐ The appeal brief filed on _____ is NOT acceptable for the reason(s) indicated below:☐ The brief and/or brief fee is untimely. See 37 CFR 1.192.☐ The statutory fee for filing the brief has not been submitted. See 37 CFR 1.17(c).☐ The submitted brief fee of \$ _____ is insufficient. The brief fee required by 37 CFR 1.17(c) is \$ _____.**The appeal in this application will be dismissed unless corrective action is taken. Extensions of time may be obtained under 37 CFR 1.136(a).**☒ The appeal in this application is DISMISSED because:☐ The fee for filing the brief as required under 37 CFR 1.17(c) was not timely submitted and the period for obtaining an extension of time to file the brief under 37 CFR 1.136 has expired.☒ The brief was not timely filed and the period for obtaining an extension of time to file the brief under 37 CFR 1.136 has expired.☒ Because of the dismissal of the appeal, this application:☒ is abandoned because there are no allowed claims.☐ is being returned to the examiner for final disposition because it contains allowed claims. Prosecution on the merits is CLOSED.
J R FISHER
PRIMARY EXAMINER
ART UNIT 2854

Notice of Abandonment

Application No.
08/538,422

Applicant(s)
Howard W. Demoore et al

Examiner
J R Fisher

Group Art Unit
2854



This application is abandoned in view of:

- ☐ applicant's failure to timely file a proper response to the Office letter mailed on _____.
- ☐ A response (with a Certificate of Mailing or Transmission of _____) was received on _____, which is after the expiration of the period for response (including a total extension of time of _____ month(s)) which expired on _____.
- ☐ A proposed response was received on _____, but it does not constitute a proper response to the final rejection.
- (A proper response to a final rejection consists only of: a timely filed amendment which places the application in a condition for allowance; a Notice of Appeal; or the filing of a continuing application under 37 CFR 1.62 (FWC)).
- ☐ No response has been received.
- ☐ applicant's failure to timely pay the required issue fee within the statutory period of three months from the mailing date of the Notice of Allowance.
- ☐ The issue fee (with a Certificate of Mailing or Transmission of _____) was received on _____.
- ☐ The submitted issue fee of \$ _____ is insufficient. The issue fee required by 37 CFR 1.18 is \$ _____.
- ☐ The issue fee has not been received.
- ☐ applicant's failure to timely file new formal drawings as required in the Notice of Allowability.
- ☐ Proposed new formal drawings (with a Certificate of Mailing or Transmission of _____) were received on _____.
- ☐ The proposed new formal drawings filed _____ are not acceptable.
- ☐ No proposed new formal drawings have been received.
- ☐ the express abandonment under 37 CFR 1.62(g) in favor of the FWC application filed on _____.
- ☐ the letter of express abandonment which is signed by the attorney or agent of record, the assignee of the entire interest, or all of the applicants.
- ☐ the letter of express abandonment which is signed by an attorney or agent (acting in a representative capacity under 37 CFR 1.34(a)) upon the filing of a continuing application.
- ☐ the decision by the Board of Patent Appeals and Interferences rendered on _____ and because the period for seeking court review of the decision has expired and there are no allowed claims.
- ☒ the reason(s) below:
The appeal has been dismissed because of the failure to file an appeal brief. Please see Form PTO-461

J R FISHER
PRIMARY EXAMINER
ART UNIT 2854

1770-264760

41

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Serial Number: 08/538,422
Filing Date: October 2, 1995
Applicant: Howard W. DeMoore, et al.
Title: Retractable Printing/Coating Unit Operable on the Plate and Blanket Cylinders Simultaneously from the Dampener Side of the First Printing Unit or any Consecutive Printing Unit or any Rotary Offset Printing Press
Group Art Unit: 3307
Examiner: J. Fisher

Assistant Commissioner of Patents
Washington, D. C. 20231

Sir:

PETITION FOR DELAYED RESPONSE

This is a Petition for delayed response and fee in the above-entitled application. Notice of Appeal was timely filed January 28, 1998. The Appeal Brief was therefore due March 28, 1998.

The time for filing the Appeal brief under 37 C.F.R. § 1.192 is subject to the provisions of § 1.136(b) for patent applications.

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LOCKE PURNELL RAIN HARRELL

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UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
Address: COMMISSIONER OF PATENTS
Washington, D.C. 20540

DEPARTMENT OF COMMERCE
J TRADEMARKS

APPLICATION NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO
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08/528422

10/02/95

DEMOORE

11178/10861

EXAMINER

FISHER, J

ART UNIT	PAPER NUMBER
----------	--------------

2854

DATE MAILED:

10/02/98

SIDLEY & AUSTIN
717 NORTH HARWOOD
SUITE 3400
DALLAS TX 75201

This is in response to the Power of Attorney filed _____

07/13/98

- ☐ 1. The Power of Attorney to you in this application **has been revoked** by the applicant. Future correspondence will be mailed to the new address of record. 37 CFR 1.33.
- ☐ 2. The Power of Attorney to you in this application **has been revoked** by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record. (37 CFR 1.33).
- ☐ 3. The withdrawal as attorney in this application **has been accepted**. Future correspondence will be mailed to the new address of record. 37 CFR 1.33.

Austin Bailey
This is a communication from the
Patent and Trademark Office

- ☒ 4. The Power of Attorney in this application **is accepted**. Correspondence in this application will be mailed to the below-noted address as provided by 37 CFR 1.33.
- ☐ 5. The Power of Attorney in this application **is not accepted** for the reason(s) checked below:
- ☐ a. The Power of Attorney is from an assignee and the Certificate required by 37 CFR 3.73 (b) has not been received.
 - ☐ b. The person signing for the assignee has omitted their empowerment to sign on behalf of the assignee.
 - ☐ c. The inventor(s) is without authority to appoint attorneys since the assignee has intervened as provided by 37 CFR 3.71.
 - ☐ d. The signature of _____, a co-inventor in this application, has been omitted. The Power of Attorney will be entered upon receipt of confirmation signed by said co-inventor.
 - ☐ e. The person(s) appointed in the Power of Attorney is not registered to practice before the U.S. Patent & Trademark Office.
 - ☐ f. The revocation is not signed by the applicant, the assignee of the entire interest, or one particular principal attorney having the authority to revoke.

LOUIS FURNESS RAIN HARRELL P.C.
ATTORNEYS INTELLECTUAL PROPERTY SECTION
1000 ROSS AVENUE
SUITE 2000
DALLAS TX 75201

Austin Bailey
This is a communication from the
Patent and Trademark Office

Notice of Abandonment

Application No.

08/538,422

Applicant(s)

Howard W. Demoore et al

Examiner

J R Fisher

Group Art Unit

2854

This application is abandoned in view of:

- ☐ applicant's failure to timely file a proper response to the Office letter mailed on _____.
- ☐ A response (with a Certificate of Mailing or Transmission of _____) was received on _____, which is after the expiration of the period for response (including a total extension of time of _____ month(s)) which expired on _____.
- ☐ A proposed response was received on _____, but it does not constitute a proper response to the final rejection.
(A proper response to a final rejection consists only of: a timely filed amendment which places the application in condition for allowance; a Notice of Appeal; or the filing of a continuing application under 37 CFR 1.62 (FWC)).
- ☐ No response has been received.
- ☐ applicant's failure to timely pay the required issue fee within the statutory period of three months from the mailing date of the Notice of Allowance.
- ☐ The issue fee (with a Certificate of Mailing or Transmission of _____) was received on _____.
- ☐ The submitted issue fee of \$ _____ is insufficient. The issue fee required by 37 CFR 1.18 is \$ _____.
- ☐ The issue fee has not been received.
- ☐ applicant's failure to timely file new formal drawings as required in the Notice of Allowability.
- ☐ Proposed new formal drawings (with a Certificate of Mailing or Transmission of _____) were received on _____.
- ☐ The proposed new formal drawings filed _____ are not acceptable.
- ☐ No proposed new formal drawings have been received.
- ☐ the express abandonment under 37 CFR 1.62(g) in favor of the FWC application filed on _____.
- ☐ the letter of express abandonment which is signed by the attorney or agent of record, the assignee of the entire interest, or all of the applicants.
- ☐ the letter of express abandonment which is signed by an attorney or agent (acting in a representative capacity under 37 CFR 1.34(a)) upon the filing of a continuing application.
- ☐ the decision by the Board of Patent Appeals and Interferences rendered on _____ and because the period for seeking court review of the decision has expired and there are no allowed claims.

☒ the reason(s) below:

Please note attachment.

The appeal in this application stands dismissed as of September 3, 1998 since an appeal brief was not filed on or before September 2, 1998.

Because of the dismissal of the appeal, this application is abandoned since there are no allowed claims.

J R FISHER
PRIMARY EXAMINER
ART UNIT 2854

THE OFFICE

42

Art Unit: 2854

ATTACHMENT TO NOTICE OF ABANDONMENT PTO-1432

This responds to Applicant's communication of August 19, 1998, Paper No. 15.

1. The letter of abandonment filed July 31, 1998 stands withdrawn.
2. The petition for a five month extension of time (Paper No. 15) has been granted.
3. The appeal in the instant application stands dismissed as of September 3, 1998 since an appeal brief was not filed on or before September 2, 1998. Because of the dismissal of the appeal, this application now stands abandoned.

It is noted that an appeal was filed February 2, 1998 (certificate of mailing, January 28, 1998) which was a proper response to the Final Rejection mailed October 28, 1997.

Applicant's communication of August 19, 1998 petitioned for a five month extension of time to file an appeal brief, 37 CFR 1.136 (b), which was granted. The granting of the five month extension of time to file an appeal brief would make the appeal brief due on September 2, 1998. The mailing of the letter of abandonment of July 31, 1998 was not timely in lieu of the proper and subsequent granting of the five month extension of time. No abandonment existed at that time and no holding of abandonment could take place. Therefore, the letter of abandonment filed July 31, 1998 stands withdrawn.

Application/Control Number: 08/538422

Page 3

Art Unit: 2854


703 308-0525

Applicant states that in lieu of filing an appeal brief, they have elected to file a continuation-in-part application and that upon granting of the filing date of the new continuation-in-part application, the appeal will not be further prosecuted.

Pursuant to a telephone conversation, Mr. Harry J. Watson, attorney of record, stated that a continuation-in-part application, Serial No. 09/136901, has been filed on August 19, 1998. Since the instant application was pending at the time of filing the continuation-in-part application, proper continuity exists between the two applications.

The appeal in the instant application stands dismissed as of September 3, 1998 since an appeal brief was not filed on or before September 2, 1998.

Because of the dismissal of the appeal, this application now stands abandoned since there are no allowed claims.


J. REED FISHER
PRIMARY EXAMINER
ART UNIT 2854

703 308-0525
February 16, 1999

TOP SECRET

73310 68699

PATENT

JCS11 U.S. PTO
09/136901
08/19/98

EXPRESS MAIL CERTIFICATE OF MAILING
UNDER 37 C.F.R. 1.10

"Express Mail" Mailing Label No.: EL076317257US
Date of Deposit: August 19, 1998

I hereby certify that the papers listed below and attached hereto are being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 C.F.R. 1.10 on the date indicated above and addressed to: Commissioner of Patents and Trademarks, Washington, D. C. 20231


Jean Brown

1. CIP Application;
2. Ten (10) Sheets Informal Drawings;
3. Three (3) Declarations Claiming Small Entity Status Under 37 C.F.R. 1.9(f) and 1.27(b);
4. Declaration Claiming Small Entity Status Under 37 C.F.R. 1.9(f) and 1.27(c);
5. Declaration and Power of Attorney;
6. Preliminary Amendment;
7. Express Mail Certificate of Mailing;
8. Check in the amount of \$1491.00;
9. Petition for Extension of Time; and
9. postcard acknowledgement.

08/19/98
JC512 U.S. PTO
09/13/98
08/19/98

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August 19, 1998

The Commissioner of Patents
and Trademarks
Washington, D. C. 20231

Re: Attorney Docket No: 73310 68699 (PRSH B8925CIP2)

Dear Sir:

Enclosed please find the following documents for filing:

- (1) the continuation-in-part patent application of

Inventor: Howard W. DeMoore, Ronald M. Rendleman, John W. Bird

For: RETRACTABLE PRINTING/COATING UNIT OPERABLE ON THE
PLATE AND BLANKET CYLINDERS SIMULTANEOUSLY FROM
THE DAMPENER SIDE OF THE FIRST PRINTING UNIT OR ANY
CONSECUTIVE PRINTING UNIT OF ANY ROTARY OFFSET
PRINTING PRESS

- (2) ten (10) sheets of drawings (informal drawings);
(3) three (3) Declarations Claiming Small Entity Status under 37 C.F.R. 1.9(f) and 1.27(b);
(4) a Declaration Claiming Small Entity Status under 37 C.F.R. 1.9(f) and 1.27(c);
(5) a Declaration and Power of Attorney;
(6) a Preliminary Amendment;

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- (7) an Express Mail Certificate of Mailing;
- (8) a check in the amount of \$1491.00 to cover the filing fee and delayed response fee;
- (9) a postcard acknowledgement; and
- (10) Petition for Delayed Response in parent patent application Serial No. 08/538,422.

The filing fee has been calculated as shown below:

SMALL ENTITY

FOR:	NO. FILED	NO. EXTRA	RATE	FEE
BASIC FEE			\$395.00	\$395.00
TOTAL CLAIMS	26 - 20 =	6	\$ 11.00	\$ 66.00
INDEP. CLAIMS	2 - 3 =	0	\$ 41.00	\$ 0
MULTIPLE DEPENDENT CLAIM PRESENTED			\$135.00	\$ 0

TOTAL \$461.00

The Commissioner is hereby authorized to charge payment of the following fees associated with this communication or credit any overpayment to Deposit Account No. 12-1781:

- Any additional fees required under 37 C.F.R. 1.16.
- Any patent application processing fees under 37 C.F.R. 1.17.

A duplicate copy of this letter is enclosed.

If any problems arise in the filing the enclosed documents, please contact Harry J. Watson at (214) 740-8713.

LOCKE PURNELL RAIN HARRELL



Harry J. Watson
Attorney of Record
Registration No. 29,985

HJW/jeb
Enc.

PATENT APPLICATION SERIAL NO. 09/136901

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE
FEE RECORD SHEET

08/25/1998 SCARMICH 00000046 09136901

01 FC:101	730.00 DP
02 FC:103	242.00 DP
03 FC:104	270.00 DP

Repln. Ref: 08/25/1998 SCARMICH 0009092300
DAB:121781 Name/Number:09136901
FC: 704 \$189.00 CR

SPECIFICATION

accompanying

Application for Grant of U.S. Letters Patent

JOINT

INVENTORS:

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Dallas, Texas 75220

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John W. Bird
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Carrollton, Texas 75007

TITLE:

"RETRACTABLE PRINTING/COATING UNIT OPERABLE ON THE PLATE
AND BLANKET CYLINDERS SIMULTANEOUSLY FROM THE DAMPENER
SIDE OF THE FIRST PRINTING UNIT OR ANY CONSECUTIVE PRINTING
UNIT OF ANY ROTARY OFFSET PRINTING PRESS"

1 Field of the Invention

2 This invention relates generally to sheet-fed or web-fed, rotary offset lithographic printing
3 presses, and more particularly, to a new and improved inking/coating apparatus for the in-line
4 application of aqueous or flexographic printing inks, primer or protective/decorative coatings
5 applied simultaneously to the plate and blanket of the first or any consecutive printing unit of
6 any lithographic printing press.

7

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1 printed sheets. Such coatings are particularly desirable when decorative or protective finishes
2 are applied in the printing of posters, record jackets, brochures, magazines, folding cartons and
3 the like.

4
5 Description of the Prior Art

6 Various arrangements have been made for applying the coating as an in-line printing
7 operation by using the last printing unit of the press as the coating application unit. For
8 example, U.S. Patents 4,270,483; 4,685,414; and 4,779,557 disclose coating apparatus which
9 can be moved into position to permit the blanket cylinder of the last printing unit of a printing
10 press to be used to apply a coating material over the freshly printed sheets. In U.S. Patent
11 4,841,903 (Bird) there are disclosed coating apparatus which can be selectively moved between
12 the plate cylinder or the blanket cylinder of the last printing unit of the press so the last printing
13 unit can only be used for coating purposes. However, when coating apparatus of these types
14 are being used, the last printing unit cannot be used to print ink to the sheets, but rather can only
15 be used for the coating operation. Thus, while coating with this type of in-line coating
16 apparatus, the printing press loses the capability of printing on the last printing unit as it is
17 converted to a coating unit.

18 The coater of U.S. Patent 5,107,790 (Sliker et al) is retractable along an inclined rail for
19 extending and retracting a coater head into engagement with a blanket on the blanket cylinder.
20 Because of its size, the rail-retractable coater can only be installed between the last printing unit
21 of the press and the delivery sheet stacker, and cannot be used for interunit coating. The coater
22 of U.S. Patent 4,615,293 (Jahn) provides two separate, independent coaters located on the

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1 overcoated immediately on the next printing unit with waterless, aqueous, flexographic or
2 lithographic inks or coating materials.

3 Yet another object of the present invention is to provide improved inking/coating
4 apparatus for use on a multiple color rotary offset printing press that can apply ink or coating
5 material separately and/or simultaneously to the plate and/or blanket of a printing unit of the
6 press from a single operative position, and from a single inking/coating apparatus.

7 A related object of the present invention is to provide improved inking/coating apparatus
8 of the character described, in which virtually no printing unit adjustment or alteration is required
9 when the inking/coating apparatus is converted from plate to blanket printing or coating and vice
10 versa.

11 Another object of the present invention is to provide improved inking/coating apparatus
12 that can be operably mounted in the dampener space of any lithographic printing unit for
13 inking/coating engagement with either a plate on a plate cylinder or a plate or blanket on a
14 blanket cylinder, and which does not interfere with operator movement or activities in the
15 interunit space between printing units.

16

17 Summary of the Invention

18 The foregoing objects are achieved by a retractable, in-line inking/coating apparatus
19 which is mounted on the dampener side of any printing unit of a rotary offset press for
20 movement between an operative (on-impression) inking/coating position and a retracted,
21 disengaged (off-impression) position. The inking/coating apparatus includes an applicator roller
22 which is movable into and out of engagement with a plate on a plate cylinder or a blanket on

1 a blanket cylinder. The inking/coating applicator head is pivotally coupled to a printing unit by
2 pivot pins which are mounted on the press side frames in the traditional dampener space of the
3 printing unit in parallel alignment with the plate cylinder and the blanket cylinder. This
4 dampener space mounting arrangement allows the inking/coating unit to be installed between any
5 adjacent printing units on the press.

6 In the preferred embodiment, the applicator head includes vertically spaced pairs of
7 cradle members with one cradle pair being adapted for supporting an inking/coating applicator
8 roller in alignment with a plate cylinder, and the other cradle pair supporting an inking/coating
9 applicator roller in alignment with the blanket cylinder, respectively, when the applicator head
10 is in the operative position. Because of the pivotal support provided by the pivot pins, the
11 applicator head can be extended and retracted within the limited space available in the traditional
12 dampener space, without restricting operator access to the printing unit cylinders and without
13 causing a printing unit to lose its printing capability.

14 When the inking/coating apparatus is used in combination with a flexographic printing
15 plate and aqueous or flexographic ink or coating material, the water component of the aqueous
16 or flexographic ink or coating material on the freshly printed or coated sheet is evaporated and
17 dried by a high velocity, hot air interunit dryer and a high volume heat and moisture extractor
18 assembly so that the freshly printed ink or coating material is dry before the sheet is printed or
19 coated on the next printing unit. This quick drying process permits a base layer or film of ink,
20 for example opaque white or metallic (gold, silver or other metallics) ink to be printed on the
21 first printing unit, and then overprinted on the next printing unit without back-trapping or dot
22 gain

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1 The construction and operation of the present invention will be understood from the
2 following detailed description taken in conjunction with the accompanying drawings which
3 disclose, by way of example, the principles and advantages of the present invention.

4
5 Brief Description of the Drawings

6 FIGURE 1 is a perspective view of a sheet fed, rotary offset printing press having
7 inking/coating apparatus embodying the present invention;

8 FIGURE 2 is a simplified perspective view of the single head, dual cradle inking/coating
9 apparatus of the present invention;

10 FIGURE 3 is a schematic side elevational view of the printing press of Figure 1 having
11 single head, dual cradle inking/coating apparatus installed in the traditional dampener position
12 of the first, second and last printing units;

13 FIGURE 4 is a simplified side elevational view showing the single head, dual cradle
14 inking/coating apparatus in the operative inking/coating position for simultaneously printing on
15 the printing plate and blanket on the fourth printing unit;

16 FIGURE 5 is a simplified side elevational view showing the single head, dual cradle
17 inking/coating apparatus in the operative position for spot or overall inking or coating on the
18 blanket of the first printing unit, and showing the dual cradle inking/coating apparatus in the
19 operative position for spot or overall inking or coating on the printing plate of the second
20 printing unit;

21 FIGURE 6 is a simplified side elevational view of the single head, dual cradle
22 inking/coating apparatus of FIGURE 4 and FIGURE 5, partially broken away, showing the

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1 single head, dual cradle inking/coating apparatus in the operative coating position and having
2 a sealed doctor blade reservoir assembly for spot or overall coating on the blanket;

3 FIGURE 7 is a schematic view showing a heat exchanger and pump assembly connected
4 to the single head, dual cradle inking/coating apparatus for circulating temperature controlled
5 ink or coating material to the inking/coating apparatus;

6 FIGURE 8 is a side elevational view, partially broken away, and similar to FIGURE 6
7 which illustrates an alternative coating head arrangement;

8 FIGURE 9 is a simplified elevational view of a printing unit which illustrates pivotal
9 coupling of the inking/coating apparatus on the printing unit side frame members;

10 FIGURE 10 is a view similar to FIGURE 2 in which a pair of split applicator rollers are
11 mounted in the upper cradle and lower cradle, respectively;

12 FIGURE 11 is a side elevational view of a split applicator roller;

13 FIGURE 12 is a perspective view of a doctor blade reservoir which is centrally
14 partitioned by a seal element;

15 FIGURE 13 is a sectional view showing sealing engagement of the split applicator roller
16 against the partition seal element of FIGURE 12;

17 FIGURE 14 is a view similar to FIGURE 8 which illustrates an alternative inking/coating
18 embodiment;

19 FIGURE 15 is a simplified side elevational view of a substrate which has a bronzed-like
20 finish which is applied by simultaneous operation of the dual applicator roller embodiment of

21 FIGURE 14;

FIGURE 16 is a side elevational view, partly in section, of a pan roller having separate transfer surfaces mounted on a split fountain pan;

FIGURE 17 is a simplified side elevational view of the dual cradle inking/coating apparatus, partially broken away, which illustrates an alternative inking/coating head apparatus featuring a single doctor blade assembly, anilox applicator roller mounted on the lower cradle; and

FIGURE 18 is a side elevational view, partly in section, of a single doctor blade anilox applicator roller assembly having separate transfer surfaces, and a split fountain pan having separate fountain compartments, with the separate fountain compartments being supplied with different inks or coating materials from separate off-press sources.

12 Detailed Description of the Preferred Embodiments

13 As used herein, the term "processed" refers to printing and coating methods which can
14 be applied to either side of a substrate, including the application of lithographic, waterless, UV-
15 curable, aqueous and flexographic inks and/or coatings. The term "substrate" refers to sheet
16 and web material. Also, as used herein, the term "waterless printing plate" refers to a printing
17 plate having image areas and non-image areas which are oleophilic and oleophobic, respectively.
18 "Waterless printing ink" refers to an oil-based ink which does not contain a significant aqueous
19 component. "Flexographic plate" refers to a flexible printing plate having a relief surface which
20 is wettable by flexographic ink or coating material. "Flexographic printing ink or coating
21 material" refers to an ink or coating material having a base constituent of either water, solvent
22 or UV-curable liquid. "UV-curable lithographic printing ink and coating material" refers to

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1 oil-based printing inks and coating materials that can be cured (dried) photomechanically by
2 exposure to ultraviolet radiation, and that have a semi-paste or gel-like consistency. "Aqueous
3 printing ink or coating material" refers to an ink or coating material that predominantly contains
4 water as a solvent, diluent or vehicle. A "relief plate" refers to a printing plate having image
5 areas which are raised relative to non-image areas which are recessed.

6 As shown in the exemplary drawings, the present invention is embodied in a new and
7 improved in-line inking/coating apparatus, herein generally designated 10, for applying aqueous,
8 flexographic or UV-curable inks or protective and/or decorative coatings to sheets or webs
9 printed in a sheet-fed or web-fed, rotary offset printing press, herein generally designated 12.
10 In this instance, as shown in FIGURE 1, the inking/coating apparatus 10 is installed in a four
11 unit rotary offset printing press 12, such as that manufactured by Heidelberger Druckmaschinen
12 AG of Germany under its designation Heidelberg Speedmaster SM102 (40", 102cm).

13 The press 12 includes a press frame 14 coupled at one end, herein the right end, to a
14 sheet feeder 16 from which sheets, herein designated S, are individually and sequentially fed into
15 the press, and at the opposite end, with a sheet delivery stacker 20 in which the freshly printed
16 sheets are collected and stacked. Interposed between the sheet feeder 16 and the sheet delivery
17 stacker 20 are four substantially identical sheet printing units 22, 24, 26 and 28 which can print
18 four different colors onto the sheets as they are transferred through the press 12. The printing
19 units are housed within printing towers T1, T2, T3 and T4 formed by side frame members 14,
20 15. Each printing tower has a delivery side 25 and a dampener side 27. A dampener space 29
21 is partially enclosed by the side frames on the dampener side of the printing unit.

As illustrated, the printing units 22, 24, 26 and 28 are substantially identical and of conventional design. The first printing unit 22 includes an in-feed transfer cylinder 30, a plate cylinder 32, a blanket cylinder 34 and an impression cylinder 36, all supported for rotation in parallel alignment between the press side frames 14, 15 which define printing unit towers T1, T2, T3 and T4. Each of the first three printing units 22, 24 and 26 have a transfer cylinder 38 disposed to transfer the freshly printed sheets from the adjacent impression cylinder and transfer the freshly printed sheets to the next printing unit via an intermediate transfer drum 40.

8 The last printing unit 28 includes a delivery cylinder 42 mounted on a delivery shaft 43.
9 The delivery cylinder 42 supports the freshly printed sheet 18 as it is transferred from the last
10 impression cylinder 36 to a delivery conveyor system, generally designated 44, which transfers
11 the freshly printed sheet to the sheet delivery stacker 20. To prevent smearing during transfer,
12 a flexible covering is mounted on the delivery cylinder 42, as described and claimed in U.S.
13 Patent 4,402,267 to Howard W. DeMoore, which is incorporated herein by reference. The
14 flexible covering is manufactured and sold by Printing Research, Inc. of Dallas, Texas, U.S.A.,
15 under its trademark SUPER BLUE®. Optionally, a vacuum-assisted sheet transfer assembly
16 manufactured and sold by Printing Research, Inc. of Dallas, Texas, U.S.A., under its trademark
17 BACVAC® can be substituted for the delivery transfer cylinder 42 and flexible covering.

18 The delivery conveyor system 44 as shown in FIGURE 2 is of conventional design and
19 includes a pair of endless delivery gripper chains 46, only one of which is shown carrying at
20 regular spaced locations along the chains, laterally disposed gripper bars having gripper fingers
21 used to grip the leading edge of a freshly printed or coated sheet 18 after it leaves the nip
22 between the impression cylinder 36 and delivery cylinder 42 of the last printing unit 28. As the

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866180-FIGURE 60

1 leading edge is gripped by the gripper fingers, the delivery chains 46 pull the sheet away from
2 the last impression cylinder 36 and convey the freshly printed or coated sheet to the sheet
3 delivery stacker 20.

4 Prior to reaching the delivery sheet stacker, the freshly printed and/or coated sheets S
5 pass under a delivery dryer 48 which includes a combination of infra-red thermal radiation, high
6 velocity hot air flow and a high performance heat and moisture extractor for drying the ink
7 and/or the protective/decorative coating. Preferably, the delivery dryer 48, including the high
8 performance heat and moisture extractor is constructed as described in U.S. Application Serial
9 Number 08/116,711, filed September 3, 1993, entitled "Infra-Red Forced Air Dryer and
10 Extractor" by Howard C. Secor, Ronald M. Rendleman and Paul D. Copenhaver, commonly
11 assigned to the assignee of the present invention, Howard W. DeMoore, and licensed to Printing
12 Research, Inc. of Dallas, Texas, U.S.A., which manufactures and markets the delivery dryer
13 48 under its trademark AIR BLANKET™.

14 In the exemplary embodiment shown in FIGURE 3, the first printing unit 22 has a
15 flexographic printing plate PF mounted on the plate cylinder, and therefore neither an inking
16 roller train nor a dampening system is required. A flexographic printing plate PF is also
17 mounted on the plate cylinder of the second printing unit 24. The form rollers of the inking
18 roller train 52 shown mounted on the second printing unit 24 are retracted and locked off to
19 prevent plate contact. Flexographic ink is supplied to the flexographic plate PF of the second
20 printing unit 24 by the inking/coating apparatus 10.

21 A suitable flexographic printing plate PF is offered by E.I. du Pont de Nemours of
22 Wilmington, Delaware, U.S.A., under its trademark CYREL®. Another source is BASF

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1 A dampening system is not used for waterless printing, and waterless (oil-based) printing ink is
2 used. The waterless printing plate PW has image areas and non-image areas which are
3 oleophilic/hydrophilic and oleophobic/hydrophobic, respectively. The waterless printing plate
4 PW is engraved or etched, with the image areas being recessed with respect to the non-image
5 areas. The image area of the waterless printing plate PW is rolled-up with the flexographic or
6 aqueous printing ink which is transferred by the applicator roller 66. Both aqueous and oil-based
7 inks and coatings are repelled from the non-image areas, and are retained in the image areas.
8 The printing ink or coating is then transferred from the image areas to an ink or coating
9 receptive blanket B and is printed or coated onto a substrate S.

10 For some printing jobs, a flexographic plate PF or a waterless printing plate PW is
11 mounted over a resilient packing such as the blanket B on the blanket cylinder 34, for example
12 as indicated by phantom lines in printing unit 22 of FIGURE 5. An advantage of this alternative
13 embodiment is that the waterless plate PW or the flexographic plate PF are resiliently supported
14 over the blanket cylinder by the underlying blanket B or other resilient packing. The radial
15 deflection and give of the resilient blanket B provides uniform, positive engagement between the
16 applicator roller 66 and a flexographic plate or waterless plate.

17 In that arrangement, a plate is not mounted on the plate cylinder 32; instead, a waterless
18 plate PW is mounted on the blanket cylinder, and the inked image on the waterless printing plate
19 is not offset but is instead transferred directly from the waterless printing plate PW to the
20 substrate S. The water component of flexographic ink on the freshly printed sheet is evaporated
21 by high velocity, hot air dryers and high volume heat and moisture extractors so that the freshly

1 printed aqueous or flexographic ink is dried before the substrate is printed on the next printing
2 unit.

3 Referring now to FIGURE 2, FIGURE 3 and FIGURE 9, the inking/coating apparatus
4 10 is pivotally mounted on the side frames 14, 15 for rotation about an axis X. The
5 inking/coating apparatus 10 includes a frame 60, a hydraulic motor 62, a lower gear train 64,
6 an upper gear train 65, an applicator roller 66, a sealed doctor blade assembly 68 (FIGURE 6),
7 and a drip pan DP, all mounted on the frame 60. The external peripheral surface of the
8 applicator roller 66 is wetted by contact with liquid coating material or ink contained in a
9 reservoir 70.

10 The hydraulic motor 62 drives the applicator roller 66 synchronously with the plate
11 cylinder 32 and the blanket cylinder 34 in response to an RPM control signal from the press
12 drive (not illustrated) and a feedback signal developed by a tachometer 72. While a hydraulic
13 drive motor is preferred, other drive means such as an electric drive motor or an equivalent can
14 be used.

15 When using waterless printing plate systems, the temperature of the waterless printing
16 ink and of the waterless printing plate must be closely controlled for good image reproduction.
17 For example, for waterless offset printing with TORAY waterless printing plates PW, it is
18 absolutely necessary to control the waterless printing plate surface and waterless ink temperature
19 to a very narrow range, for example 24°C (75°F) to 27°C (80°F).

20 Referring to FIGURE 7, the reservoir 70 is supplied with ink or coating which is
21 temperature controlled by a heat exchanger 71. The temperature controlled ink or coating
22 material is circulated by a positive displacement pump, for example a peristaltic pump, through

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1 The applicator roller 66 is preferably an anilox fluid metering roller which transfers
2 measured amounts of printing ink or coating material to a plate or blanket. The surface of an
3 anilox roller is engraved with an array of closely spaced, shallow depressions referred as "cells".
4 Ink or coating from the reservoir 70 flows into the cells as the anilox roller turns through the
5 reservoir. The transfer surface of the anilox roller is "doctored" (wiped or scraped) by dual
6 doctor blades 68A, 68B to remove excess ink or coating material. The ink or coating metered
7 by the anilox roller is that contained within the cells. The dual doctor blades 68A, 68B also seal
8 the supply reservoir 70.

9 The anilox applicator roller 66 is cylindrical and may be constructed in various diameters
10 and lengths, containing cells of various sizes and shapes. The volumetric capacity of an anilox
11 roller is determined by cell size, shape and number of cells per unit area. Depending upon the
12 intended application, the cell pattern may be fine (many small cells per unit area) or coarse
13 (fewer large cells per unit area).

14 By supplying the ink or coating material through the inking/coating apparatus 10, more
15 ink or coating material can be applied to the sheet S as compared with the inking roller train of
16 a lithographic printing unit. Moreover, color intensity is stronger and more brilliant because the
17 aqueous or flexographic ink or coating material is applied at a much heavier film thickness or
18 weight than can be applied by the lithographic process, and the aqueous or flexographic colors
19 are not diluted by dampening solution.

20 Preferably, the sealed doctor blade assembly 68 is constructed as described in U.S. Patent
21 5,176,077 to Howard W. DeMoore, co-inventor and assignee, which is incorporated herein by
22 reference. An advantage of using a sealed reservoir is that fast drying ink or coating material

1 chamber. Moreover, the seal band provides an unprinted or uncoated area which separates the
2 printed or coated areas from each other, which is needed for work and turn printing jobs or
3 other printing jobs which print two or more separate images onto the same substrate.

4 Another advantage of the split applicator roller embodiment is that it enables two or more
5 flexographic inks or coating materials to be printed simultaneously within the same lithographic
6 printing unit. That is, the reservoir chambers 70A, 70B of the upper doctor blade assembly can
7 be supplied with gold ink and silver ink, for example, while the reservoir chambers 70A, 70B
8 of the lower doctor blade assembly can be supplied with inks of two additional colors, for
9 example opaque white ink and blue ink. This permits the opaque white ink to be overprinted
10 with the gold ink, and the blue ink to be overprinted with the silver ink on the same printing unit
11 on any lithographic press.

12 Moreover, a catalyst can be used in the upper doctor blade reservoir and a reactive ink
13 or coating material can be used in the lower doctor blade reservoir. This can provide various
14 effects, for example improved chemical resistance and higher gloss levels.

15 The split applicator roller sections 67A, 67B in the upper cradle position can be used for
16 applying two separate inks or coating materials simultaneously, for example flexographic,
17 aqueous and ultra-violet curable inks or coating materials, to separate surface areas of the plate,
18 while the lower applicator roller sections 66A, 66B can apply an initiator layer and a
19 microencapsulated layer simultaneously to separate blanket surface areas. Optionally, the
20 metering surface portions 66A, 66B can be provided with different cell metering capacities for
21 providing different printing effects which are being printed simultaneously. For example, the
22 screen line count on one half-section of an anilox applicator roller is preferably in the range of

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1 200-600 lines per inch (79-236 lines per cm) for half-tone images, and the screen line count of
2 the other half-section is preferably in the range of 100-300 lines per inch (39-118 lines per cm)
3 for overall coverage, high weight applications such as opaque white. This split arrangement in
4 combination with dual applicator rollers is particularly advantageous when used in connection
5 with "work and turn" printing jobs.

6 Referring again to FIGURE 8, instead of using the sealed doctor blade reservoir assembly
7 68 as shown in FIGURE 6, an open fountain assembly 69 is provided by the fountain pan 53
8 which contains a volume of liquid ink Q or coating material. The liquid ink or coating material
9 is transferred to the applicator roller 66 by a pan roller 55 which turns in contact with ink Q or
10 coating material in the fountain pan. If a split applicator roller is used, the pan roller 55 is also
11 split, and the pan is divided into two pan sections 53A, 53B by a separator plate 53P, as shown
12 in FIGURE 16.

13 In the alternative embodiment of FIGURE 16, the pan roller 55 is divided into two pan
14 roller sections 55A, 55B by a centrally located, annular groove 59. The separator plate 53P is
15 received within and centrally aligned with the groove 59, but does not touch the adjoining roller
16 faces. By this arrangement, two or more inks or coating materials Q1, Q2 are contained within
17 the open pan sections 55A, 55B for transfer by the split pan roller sections 53A, 53B,
18 respectively. This permits two or more flexographic inks or coating materials to be transferred
19 to two separate image areas on the plate or on the blanket of the same printing unit. This
20 arrangement is particularly advantageous for work and turn printing jobs or other printing jobs
21 which print two or more separate images onto the same substrate.

FIG. 10 - INKING/COATING APPARATUS

1 The frame 60 of the inking/coating apparatus 10 includes side support members 74, 76
2 which support the applicator roller 66, gear train 64, gear train 65, doctor blade assembly 68
3 and the drive motor 62. The applicator roller 66 is mounted on stub shafts 63A, 63B which are
4 supported at opposite ends on a lower cradle assembly 100 formed by a pair of side support
5 members 78, 80 which have sockets 79, 81 and retainer caps 101, 103. The stub shafts are
6 received in roller bearings 105, 107 which permit free rotation of the applicator roller 66 about
7 its longitudinal axis A1 (axis A2 in the upper cradle). The retainer caps 101, 103 hold the stub
8 shafts 63A, 63B and bearings 105, 107 in the sockets 79, 81 and hold the applicator roller 66
9 in parallel alignment with the pivot axis X.

10 The side support members 74, 76 also have an upper cradle assembly 102 formed by a
11 pair of side support members 82, 84 which are vertically spaced with respect to the lower side
12 plates 78, 80. Each cradle 100, 102 has a pair of sockets 79, 81 and 83, 85, respectively, for
13 holding an applicator roller 66, 67 for spot coating or inking engagement with the printing plate
14 P on the plate cylinder 32 (FIGURE 4) or with a printing plate P or a blanket B on the blanket
15 cylinder 34.

16 Preferably, the applicator roller 67 (FIGURE 8, FIGURE 9) the upper cradle (plate)
17 position is an anilox roller having a resilient transfer surface. In the dual cradle arrangement
18 as shown in FIGURE 2, the press operator can quickly change from blanket inking/coating to
19 plate inking/coating within minutes, since it is only necessary to release, remove and reposition
20 or replace the applicator roller 66.

21 The capability to simultaneously print in the flexographic mode, the aqueous mode, the
22 waterless mode, or the lithographic mode on different printing units of the same lithographic

1 for engagement of the applicator roller with either a plate on the plate cylinder or a blanket on
2 the blanket cylinder on the delivery side 25 of the printing unit.

3 Movement of the inking/coating apparatus 10 to the operative (on-impression) position
4 is produced by power actuators, preferably double acting pneumatic cylinders 104, 106 which
5 have extendable/retractable power transfer arms 104A, 106A, respectively. The first pneumatic
6 cylinder 104 is pivotally coupled to the press frame 14 by a pivot pin 108, and the second
7 pneumatic cylinder 106 is pivotally coupled to the press frame 15 by a pivot pin 110. In
8 response to selective actuation of the pneumatic cylinders 104, 106, the power transfer arms
9 104A, 106A are extended or retracted. The power transfer arm 104A is pivotally coupled to
10 the side support member 74 by a pivot pin 112. Likewise, the power transfer arm 106A is
11 pivotally coupled to the side support member 76 by a pivot pin 114.

12 As the power arms extend, the inking/coating apparatus 10 is rotated clockwise on the
13 pivot pins 88P, 90P, thus moving the applicator roller 66 to the off-impression position. As the
14 power arms retract, the inking/coater apparatus 60 is rotated counterclockwise on the pivot pins
15 88P, 90P, thus moving the applicator roller 66 to the on-impression position. The torque
16 applied by the pneumatic actuators is transmitted to the inking/coating apparatus 10 through the
17 pivot pin 112 and pivot pin 114.

18 Fine adjustment of the on-impression position of the applicator roller relative to the plate
19 cylinder or the blanket cylinder, and of the pressure of roller engagement, is provided by an
20 adjustable stop assembly 115. The adjustable stop assembly 115 has a threaded bolt 116 which
21 is engagable with a bell crank 118.

1 transferred by the impression cylinder 36 and the intermediate transfer drum 40 of one printing
 2 unit and to another transfer cylinder 30 and to the impression cylinder 36 of the next printing
 3 unit. By that arrangement, the freshly printed flexographic ink or coating material is dried
 4 before the substrate S is overprinted by the next printing unit.

5 The high velocity, hot air dryer and high performance heat and moisture extractor units
 6 124, 126 and 128 utilize high velocity air jets which scrub and break-up the moist air layer
 7 which clings to the surface of each freshly printed or coated sheet or web. Within each dryer,
 8 high velocity air is heated as it flows across a resistance heating element within an air delivery
 9 baffle tube. High velocity jets of hot air are discharged through multiple airflow apertures into
 10 an exposure zone Z (FIGURE 4 and FIGURE 5) and onto the freshly printed/coated sheet S as
 11 it is transferred by the impression cylinder 36 and transfer drum 40, respectively.

12 Each dryer assembly includes a pair of air delivery dryer heads 124D, 126D and 128D
 13 which are arranged in spaced, side-by-side relationship. The high velocity, hot air dryer and
 14 high performance heat and moisture extractor units 124, 126 and 128 are preferably constructed
 15 as disclosed in co-pending U.S. Patent Application Serial No. 08/132,584, filed October 6,
 16 1993, entitled "High Velocity Hot Air Dryer", to Howard W. DeMoore, co-inventor and
 17 assignee of the present invention, and which is incorporated herein by reference, and which is
 18 marketed by Printing Research, Inc. of Dallas, Texas, U.S.A., under its trademark SUPER
 19 BLUE HV™.

20 The hot moisture-laden air displaced from the surface of each printed or coated sheet is
 21 extracted from the dryer exposure zone Z and exhausted from the printing unit by the high
 22 volume extractors 124, 126 and 128. Each extractor head includes an extractor manifold 124E,

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1 126E and 128E coupled to the dryer heads 124D, 126D and 128D and draws the moisture,
2 volatiles, odors and hot air through a longitudinal air gap G between the dryer heads. Best
3 results are obtained when extraction is performed simultaneously with drying. Preferably, an
4 extractor is closely coupled to the exposure zone Z at each dryer location as shown in FIGURE
5 4. Extractor heads 124E, 126E and 128E are mounted on the dryer heads 124D, 126D and
6 128D, respectively, with the longitudinal extractor air gap G facing directly into the exposure
7 zone Z. According to this arrangement, each printed or coated sheet is dried before it is printed
8 on the next printing unit.

9 The aqueous water-based inks used in flexographic printing evaporate at a relatively
10 moderate temperature provided by the interunit high velocity hot air dryers/extractors 124, 126
11 and 128. Sharpness and print quality are substantially improved since the flexographic ink or
12 coating material is dried before it is overprinted on the next printing unit. Since the freshly
13 printed flexographic ink is dry, dot gain is substantially reduced and back-trapping on the blanket
14 of the next printing unit is virtually eliminated. This interunit drying/extracting arrangement
15 makes it possible to print flexographic inks such as metallic ink and opaque white ink on the first
16 printing unit, and then dry-trap and overprint on the second and subsequent printing units.

17 Moreover, this arrangement permits the first printing unit 22 to be used as a coater in
18 which a flexographic, aqueous or UV-curable coating material is applied to the lowest grade
19 substrate such as recycled paper, cardboard, plastic and the like, to trap and seal-in lint, dust,
20 spray powder and other debris and provide a smoother, more durable printing surface which can
21 be overprinted on the next printing unit.

1 A first down (primer) aqueous coating layer seals-in the surface of a low grade, rough
2 substrate, for example, re-cycled paper or plastic, and improves overprinted dot definition and
3 provides better ink lay-down while preventing strike-through and show-through. A flexographic
4 UV-curable coating material can then be applied downstream over the primer coating, thus
5 producing higher coating gloss.

6 Preferably, the applicator roller 66 is constructed of composite carbon fiber material,
7 metal or ceramic coated metal when it is used for applying ink or coating material to the blanket
8 B or other resilient material on the blanket cylinder 34. When the applicator roller 66 is applied
9 to the plate, it is preferably constructed as an anilox roller having a resilient, compressible
10 transfer surface. Suitable resilient roller surface materials include Buna N synthetic rubber and
11 EPDM (terpolymer elastomer). EPDM is known to be completely acceptable for use with UV-
12 curable inks and coating applications.

13 A demonstration resilient anilox roller was made by covering a steel core with about 1/2
14 inch of rubber to a diameter of about four inches. The rubber had a hardness of about 80 on
15 the Shore "A" scale. The surface was laser engraved by Consolidated Engravers, 2255 West
16 Longhorn Dr., Lancaster, TX 76134 with four different patterns in approximately 10 inch wide
17 bands across the face comprising about 125,150,175 and 200 lines/inch with what was a
18 "hexagonal" cell pattern. Satisfactory coatings were applied via the plate cylinder to a substrate
19 with all four patterns. A second resilient anilox roll was obtained which had only one 150
20 lines/inch overall pattern with a cell volume of about 9 cubic billion microns (CBM).
21 Satisfactory coating was applied from this roll against a plate. Coating was applied to the roll
22 by a sealed doctor blade assembly like assembly 68 in Figure 6. The roller produced useful film

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1 reposition it in the other cradle. All of this can be accomplished in a few minutes, without
2 removing the inking/coating apparatus 10 from the press.

3 It is possible to spot coat or overall coat from the plate position or from the blanket
4 position with flexographic inks or coatings on one printing unit and then spot coat or overall coat
5 with UV-curable inks or coatings from the plate position or from the blanket position on another
6 printing unit during the same press run. Moreover, the press operator can spot or overall coat
7 from the plate for one job, and then spot and/or overall coat from the blanket on the next job.

8 The positioning of the applicator roller relative to the plate or blanket is repeatable to a
9 predetermined preset operative position. Consequently, only minor printing unit modifications
10 or alterations may be required for the LITHOFLEX™ process. Although automatic extension
11 and retraction have been described in connection with the exemplary embodiment, extension to
12 the operative (on-impression) position and retraction to a non-operative (off-impression) position
13 can be carried out manually, if desired. In the manual embodiment, it is necessary to latch the
14 inking/coating apparatus 10 to the press side frames 14, 15 in the operative (on-impression)
15 position, and to mechanically prop the inking/coating apparatus in the off-impression (retracted)
16 position.

17 Referring again to FIGURE 8, an applicator roller 66 is mounted on the lower cradle
18 assembly 100 by side support members 78, 80, and a second applicator roller 66 is mounted on
19 the upper cradle assembly 102 by side support members 82, 84. According to this arrangement,
20 the inking/coating apparatus 10 can apply printing ink and/or coating material to a plate on the
21 plate cylinder, while simultaneously applying printing ink and/or coating material to a plate or
22 a blanket on the blanket cylinder of the same printing unit. When the same color ink is used

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1 by the upper and lower applicator rollers from the plate position and from the blanket position
2 simultaneously on the same printing unit, a "double bump" or double inking films or coating
3 layers are applied to the substrate S during a single pass of the substrate through the printing
4 unit. The tack of the two inks or coating materials must be compatible for good transfer during
5 the double bump. Moreover, the inking/coating apparatus 10 can be used for supplying ink or
6 coating material to the blanket cylinder of a rotary offset web press, or to the blanket of a
7 dedicated coating unit.

8 According to conventional bronzing techniques, a metallic (bronze) powder is applied
9 off-line to previously printed substrate which produces a grainy, textured finish or appearance.
10 The on-line application of bronze material by conventional flexographic or lithographic printing
11 will only produce a smooth, continuous appearance. However, a grainy, textured finish is
12 preferred for highest quality printing which, prior to the present invention, could only be
13 produced by off-line methods.

14 Referring now to FIGURE 14 and FIGURE 15, metallic ink or coating material is applied
15 on-line to the substrate S by simultaneous operation of the upper and lower applicator rollers
16 67R, 66 to produce an uneven surface finish having a bronze-like textured or grainy appearance.
17 According to the simulated bronzing method of the present invention, the flexographic bronze
18 ink is applied simultaneously to the plate and to the blanket by the dual cradle inking/coating
19 apparatus 10 as shown in FIGURE 14. A resilient applicator roller 67R is mounted in the upper
20 cradle 102, and an anilox applicator roller 66 is mounted on the lower cradle 100. The rollers
21 are supplied from separate doctor blade reservoirs 70. The doctor blade reservoir 70 in the
22 upper cradle position supplies bronze ink or coating material having relatively coarse, metallic

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1 particles 140 dispersed in aqueous or flexographic ink. The coarse particle ink or coating
2 material is applied to the plate P by the resilient applicator roller 67R in the upper cradle
3 position 102. At the same time, flexographic and/or bronze ink or coating material having
4 relatively fine, metallic particles 142 is transferred to the blanket B by the anilox roller 66 which
5 is mounted on the lower cradle 100.

6 The metering surfaces of the upper and lower applicator rollers have different cell sizes
7 and volumetric capacities which accommodate the coarse and fine metallic particles. For
8 example, the anilox roller 111 mounted in the upper cradle position 102 which transfers the
9 coarse metallic particles 140 preferably has a screen line count in the range of 100-300 lines per
10 inch (39-118 lines per cm), and the metering surface of the anilox roller 66 mounted on the
11 lower cradle 100 which transfers the relatively fine metallic particles 142 preferably has a screen
12 line count in the range of 200-600 lines per inch (79-236 lines per cm).

13 After transfer from the plate to the blanket, the fine metallic particles 142 form a layer
14 over the coarse metallic particles 140. As both bronze layers are offset onto the substrate S, the
15 layer of fine metallic particles 142 is printed onto the substrate S with the top layer of coarse
16 metallic particles 140 providing a textured, grainy appearance. The fine metallic particles 142

1 It will be appreciated that the last printing unit 28 can be configured for additional
 2 inking/coating capabilities which include lithographic, waterless, aqueous and flexographic
 3 processes. Various substrate surface effects (for example double bump or triple bump
 4 inking/coating or bronzing) can be performed on the last printing unit. For triple bump
 5 inking/coating, the last printing unit 28 is equipped with an auxiliary in-line inking or coating
 6 apparatus 97 as shown in FIGURE 3 and FIGURE 4. The in-line inking or coating apparatus
 7 97 allows the application of yet another film of ink or a protective or decorative layer of coating
 8 material over any freshly printed or coated surface effects or special treatments, thereby
 9 producing a triple bump. The triple bump is achieved by applying a third film of ink or layer
 10 of coating material over the freshly printed or coated double bump simultaneously while the
 11 substrate is on the impression cylinder of the last printing unit.

12 When the in-line inking/coating apparatus 97 is installed, it is necessary to remove the
 13 SUPER BLUE® flexible covering from the delivery cylinder 42, and it is also necessary to
 14 modify or convert the delivery cylinder 42 for inking/coating service by mounting a plate or
 15 blanket B on the delivery cylinder 42, as shown in FIGURE 3 and FIGURE 4. Packing material
 16 is placed under the plate or blanket B, thereby packing the plate or blanket B at the correct
 17 packed-to-print radial clearance so that ink or coating material will be printed or coated onto the
 18 freshly printed substrate S as it transfers through the nip between the plate or blanket B on the
 19 converted delivery cylinder 42 and the last impression cylinder 36. According to this
 20 arrangement, a freshly printed or coated substrate is overprinted or overcoated with a third film

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1 or layer of ink or coating material simultaneously while a second film or layer of ink or coating
2 material is being over-printed or over-coated on the last impression cylinder 36.

3 The auxiliary inking/coating apparatus 97 and the converted or modified delivery cylinder
4 42 are mounted on the delivery drive shaft 43. The inking/coating apparatus 97 includes an
5 applicator roller, preferably an anilox applicator roller 97A, for supplying ink or coating
6 material to a plate or blanket B on the modified or converted delivery cylinder 42. The in-line
7 inking/coating apparatus 97 and the modified or converted delivery cylinder 42 are preferably
8 constructed as described in U.S. Patent 5,176,077 to Howard W. DeMoore (co-inventor and
9 assignee), which is hereby incorporated by reference. The in-line inking/coating apparatus 97
10 is manufactured and sold by Printing Research, Inc. of Dallas, Texas, U.S.A., under its
11 trademark SUPER BLUE EZ COATER.™

12 After the delivery cylinder 42 has been modified or converted for inking/coating service,
13 and because of the reduced nip clearance imposed by the plate or blanket B, the modified
14 delivery cylinder 42 can no longer perform its original function of guiding and transferring the
15 freshly printed or coated substrate. Instead, the modified or converted delivery cylinder 42
16 functions as a part of the inking/coating apparatus 97 by printing or coating a third down film
17 of ink or layer of coating material onto the freshly printed or coated substrate as it is
18 simultaneously printed or coated on the last impression cylinder 36. Moreover, the mutual tack
19 between the second down ink film or coating layer and the third down ink film or coating layer
20 causes the overprinted or overcoated substrate to cling to the plate or blanket, thus opposing or
21 resisting separation of the substrate from the plate or blanket.

1 To remedy this problem, a vacuum-assisted transfer apparatus 99 is mounted adjacent the
2 modified or converted delivery cylinder 42 as shown in FIGURE 3 and FIGURE 4. Another
3 purpose of the vacuum-assisted transfer apparatus 99 is to separate the freshly overprinted or
4 overcoated triple bump substrate from the plate or blanket B as the substrate transfers through
5 the nip. The vacuum-assisted transfer apparatus 99 produces a pressure differential across the
6 freshly overprinted or overcoated substrate as it transfers through the nip, thus producing a
7 separation force onto the substrate and providing a clean separation from the plate or blanket B.

8 The vacuum-assisted transfer apparatus 99 is preferably constructed as described in U.S.
9 Patent Nos. 5,113,255; 5,127,329; 5,205,217; 5,228,391; 5,243,909; and 5,419,254, all to
10 Howard W. DeMoore, co-inventor, which are incorporated herein by reference. The
11 vacuum-assisted transfer apparatus 99 is manufactured and sold by Printing Research, Inc. of
12 Dallas, Texas, U.S.A. under its trademark BACVAC™.

13 Although the present invention and its advantages have been described in detail, it should
14 be understood that various changes, substitutions and alterations can be made herein without
15 departing from the spirit and scope of the present invention as defined by the appended claims.

1 What is claimed is:

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1 1. In a printing press of the type having first and second side frame members
2 forming a printing unit on which a plate cylinder, a blanket cylinder and an impression cylinder
3 are supported for rotation, the improvement comprising:

4 inking/coating apparatus movably coupled to the printing unit for movement to
5 an on-impression operative position and to an off-impression retracted position; and,

6 the inking/coating apparatus including means for applying ink or coating material
7 to a plate mounted on the plate cylinder, or to a plate or blanket mounted on the blanket
8 cylinder, either separately or simultaneously when the inking/coating apparatus is in the
9 operative position.

1 2. The invention as set forth in claim 1, wherein the inking/coating apparatus
2 comprises:

3 a doctor blade assembly having a reservoir for receiving ink or coating
4 material;

5 an applicator roller coupled to the doctor blade assembly in fluid
6 communication with the reservoir, the applicator roller being engagable with a printing plate on
7 the plate cylinder or with a blanket on the blanket cylinder when the inking/coating apparatus
8 is in the operative position.

1 3. The invention as set forth in claim 2, the applicator roller comprising:

2 an anilox roller having a resilient transfer surface.

1 7. The invention as set forth in claim 1, the inking/coating apparatus
2 comprising:

3 an applicator head having first and second side support members;
4 the ink or coating applying means being mounted between the first side
5 support member and second side support member and having a reservoir or fountain pan for
6 receiving ink or coating material;

7 cradle means mounted on the first and second side support members,
8 respectively;

9 applicator roller means including at least one applicator roller mounted for
0 rotation on the cradle means and disposed for rolling contact with ink or coating material in the
1 reservoir or fountain pan, the applicator roller being engagable with a printing plate on the plate
2 cylinder or with a blanket on the blanket cylinder in the operative position; and,

power transfer means coupled to the applicator roller means for rotating
the at least one applicator roller.

8. The invention as set forth in claim 7,

the at least one cradle means including first and second cradles disposed on the first and second side support members respectively; and,

the applicator roller being mounted for rotating on one of the first and second cradles.

9. The invention as set forth in claim 7,

11 least one cylinder, and for movement to an off-impression position in which the inking/coating
12 apparatus is retracted away from said at least one cylinder.

1 12. A printing press as defined in claim 11, wherein the container means
2 comprises a doctor blade assembly having a reservoir or fountain pan for supplying ink or
3 coating material to the applicator roller, and having a doctor blade disposed for wiping
4 engagement with the applicator roller when it is received in rolling contact with ink or coating
5 material in the reservoir or pan.

1 13. A printing press as defined in claim 11, wherein the container means
2 comprises a fountain pan and the inking applying means comprises a pan roller for transferring
3 ink or coating material from the fountain pan to the applicator roller.

1 14. A printing unit of the type having a delivery side and a dampener side
2 comprising, in combination:

3 a plate cylinder mounted on the printing unit between the delivery side and
4 the dampener side, and a printing plate mounted on the plate cylinder;

5 a blanket cylinder having an ink or coating receptive blanket disposed in
6 ink or coating transfer engagement with the plate for transferring ink or coating material from
7 the image surface areas of the printing plate to the ink or coating receptive blanket;

8 an impression cylinder disposed adjacent the blanket cylinder thereby
9 forming a nip between the blanket and the impression cylinder whereby the printing ink or
10 coating material is transferred from the blanket to a substrate as the substrate is transferred
11 through the nip;

12 support means mounted on the dampener side of the printing unit; and
13 inking/coating apparatus for applying ink or coating material to the plate
14 or to the blanket, the inking/coating apparatus being movably coupled to the support means for
15 movement to an operative, on-impression position in which the inking/coating apparatus is
16 engagable with the plate or the blanket, and for movement to an off-impression position in which
17 the inking/coating apparatus is retracted and disengaged from the plate and blanket.

1 15. The invention as defined in claim 14, including;
2 a dryer mounted on the printing unit for discharging heated air onto a
3 freshly printed or coated substrate before the freshly printed or coated substrate is subsequently
4 printed, coated or otherwise processed.

1 16. The invention as defined in claim 14, wherein:
2 the dryer is mounted adjacent to the impression cylinder for discharging
3 heated air onto a freshly printed or coated substrate while the substrate is in contact with the
4 impression cylinder.

1 17. The invention as defined in claim 14, comprising:
2 an extractor coupled to the dryer for extracting hot air, moisture, odors
3 and volatiles from an exposure zone between the dryer and the freshly printed or coated
4 substrate.

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18. The invention as defined in claim 14, comprising:

a transfer cylinder disposed in an interunit position on the press and coupled in sheet transfer relation with the impression cylinder; and,
an interunit dryer disposed adjacent the transfer cylinder for discharging heated air onto a freshly printed or coated substrate after it has been transferred from the impression cylinder and while it is in contact with the transfer cylinder.

19. A printing press as defined in claim 14, further including:

a transfer drum coupled in substrate transfer relation with the impression cylinder of a first printing unit and in substrate transfer relation with the impression cylinder of a second printing unit;

a first dryer mounted adjacent the impression cylinder of the first printing unit for discharging heated air onto a freshly printed or coated substrate while the substrate is in contact with the impression cylinder of the first printing unit;

a second dryer mounted adjacent the transfer drum for discharging heated air onto a freshly printed or coated substrate after it has been transferred from the impression cylinder of the first printing unit and while it is in contact with the transfer cylinder; and,

a third dryer disposed adjacent the impression cylinder of the second printing unit for discharging heated air onto a freshly printed or coated substrate after it has been transferred from the transfer drum and while it is in contact with the impression cylinder of the second printing unit.

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1 20. In a printing press of the type having first and second side frame members
2 providing support for a printing unit in which a blanket cylinder is disposed between the delivery
3 side and the dampener side of the printing unit, the improvement comprising:

4 support means mounted on the side frame members on the dampener side
5 of the printing unit;

6 inking/coating apparatus for applying ink or coating material to a blanket
7 mounted on the blanket cylinder when the inking/coating apparatus is in the operative on-
8 impression position; and,

9 the inking/coating apparatus being pivotally coupled to the support means
10 for movement to the operative position in which the inking/coating apparatus is supported
11 laterally adjacent to the blanket cylinder and to an off-impression position in which the
12 inking/coating apparatus is retracted away from the blanket cylinder.

1 21. The invention as set forth in claim 20, wherein the printing unit includes
2 a plate cylinder and a plate mounted on the plate cylinder, the inking/coating apparatus
3 including:

4 first cradle means for supporting an applicator roller for engagement with
5 the plate when the inking/coating apparatus is in the operative position; and,

6 second cradle means for supporting an applicator roller for engagement
7 with the blanket when the inking/coating apparatus is in the operative position.

1 22. The invention as set forth in claim 20, said support means comprising:

2 first and second pivot means mounted on the first and second side frame
3 members, respectively.

1 30. A printing press as defined in any one of claims 1, 11, 14 or 20, wherein
2 the means for applying ink or coating material comprises:

3 first cradle means;

4 a first reservoir or fountain means mounted on the first cradle means for
5 containing ink or coating material;

6 a first applicator roller mounted for rotation on the first cradle means and
7 disposed for rolling contact with ink or coating material in the first reservoir or fountain means,
8 the first applicator roller being engagable with a printing plate on the plate cylinder;

9 second cradle means;

10 a second reservoir or fountain means mounted on the second cradle means
11 for receiving ink or coating material;

12 a second applicator roller mounted for rotation on the second cradle means
13 and disposed for rolling contact with ink or coating material in the second reservoir or fountain
14 means, the second applicator roller being engagable with a plate or blanket mounted on the
15 blanket cylinder in the operative position.

1 31. A printing press as defined in any one of claims 1, 11, 14 or 20, wherein
2 the means for applying ink or coating material comprises an applicator roller, and the
3 inking/coating apparatus is pivotally mounted on the printing unit in a position in which the nip
4 contact point between the applicator roller and a blanket or plate is offset with respect to a radius
5 line projecting through the center of the plate cylinder or blanket cylinder to the axis of rotation
6 of the printing/coating unit.

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"RETRACTABLE PRINTING/COATING UNIT OPERABLE ON THE PLATE
AND BLANKET CYLINDERS SIMULTANEOUSLY FROM THE DAMPENER
SIDE OF THE FIRST PRINTING UNIT OR ANY CONSECUTIVE
PRINTING UNIT OF ANY OFFSET PRINTING PRESS"

Abstract of the Disclosure

1 A retractable in-line inking/coating apparatus can apply either spot or overall
2 inking/coating material to a plate and/or a blanket on the first printing unit or on any consecutive
3 printing unit of any rotary offset printing press. The inking/coating apparatus is pivotally
4 mounted within the conventional dampener space of any lithographic printing unit. The aqueous
5 component of the flexographic printing ink or aqueous coating material is evaporated and dried
6 by high velocity, hot air dryers and high performance heat and moisture extractors so that the
7 aqueous or flexographic ink or coating material on a freshly printed or coated sheet is dry and
8 can be dry-trapped on the next printing unit. The inking/coating apparatus includes dual cradles
9 that support first and second applicator rollers so that the inking/coating apparatus can apply a
10 double bump of aqueous/flexographic or UV-curable printing ink or coating material to a plate
11 on the plate cylinder, while simultaneously applying aqueous, flexographic or UV-curable printing
12 ink or coating material to a plate or a blanket on the blanket cylinder, and thereafter onto a sheet
13 as the sheet is transferred through the nip between the blanket cylinder and the impression
14 cylinder. A triple bump is printed or coated on the last printing unit with the aid of an
15 impression cylinder inking/coating unit.

* * * * *

12-181
JFA

PPINTS
HOWARD W. DEMOORE
RONALD M. RENDLEMAN
JOHN W. BIRD

1/10

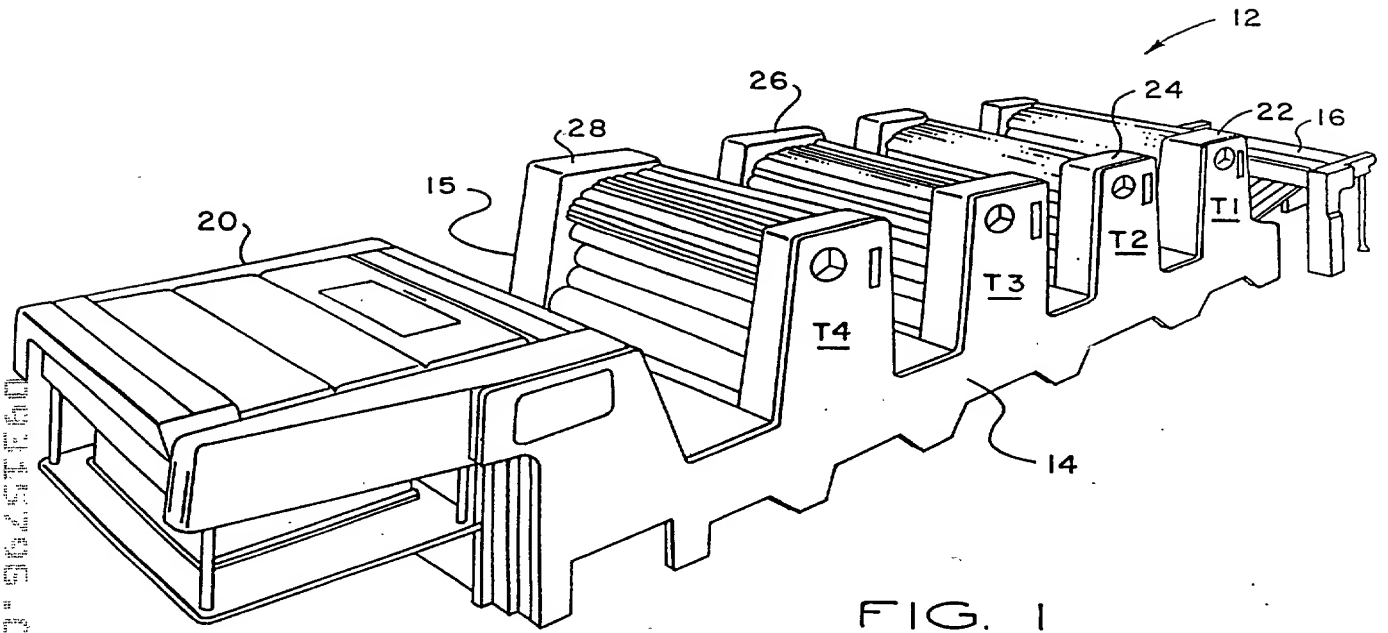


FIG. 1

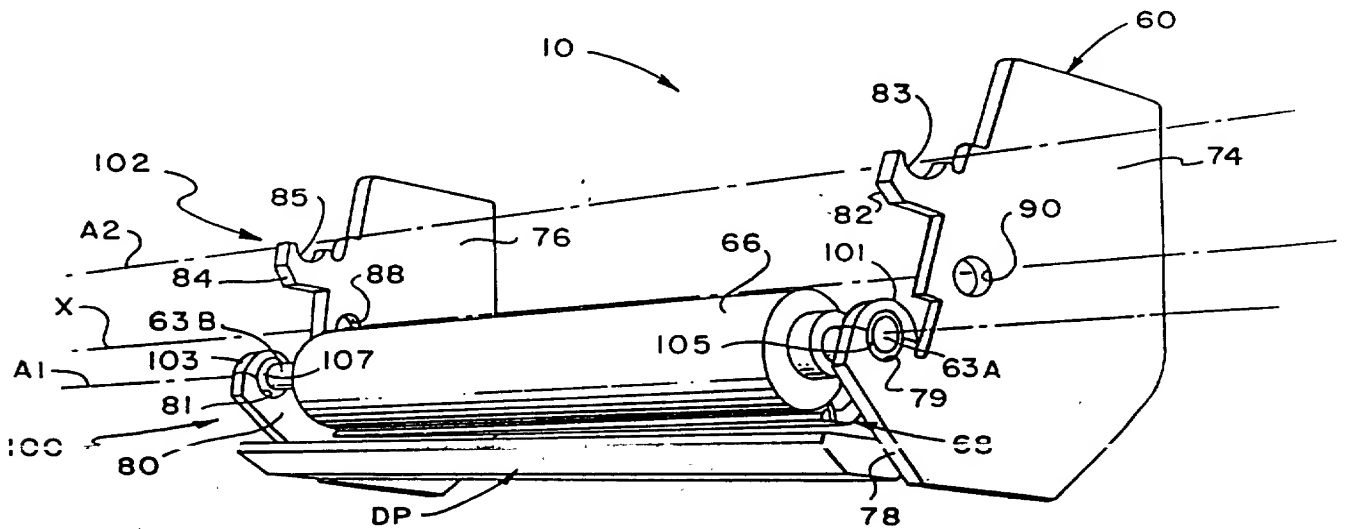


FIG. 2

HOWARD W. DEMOORE
 RONALD M. RENDLEMAN
 JOHN W. BIRD

TOP SHEET

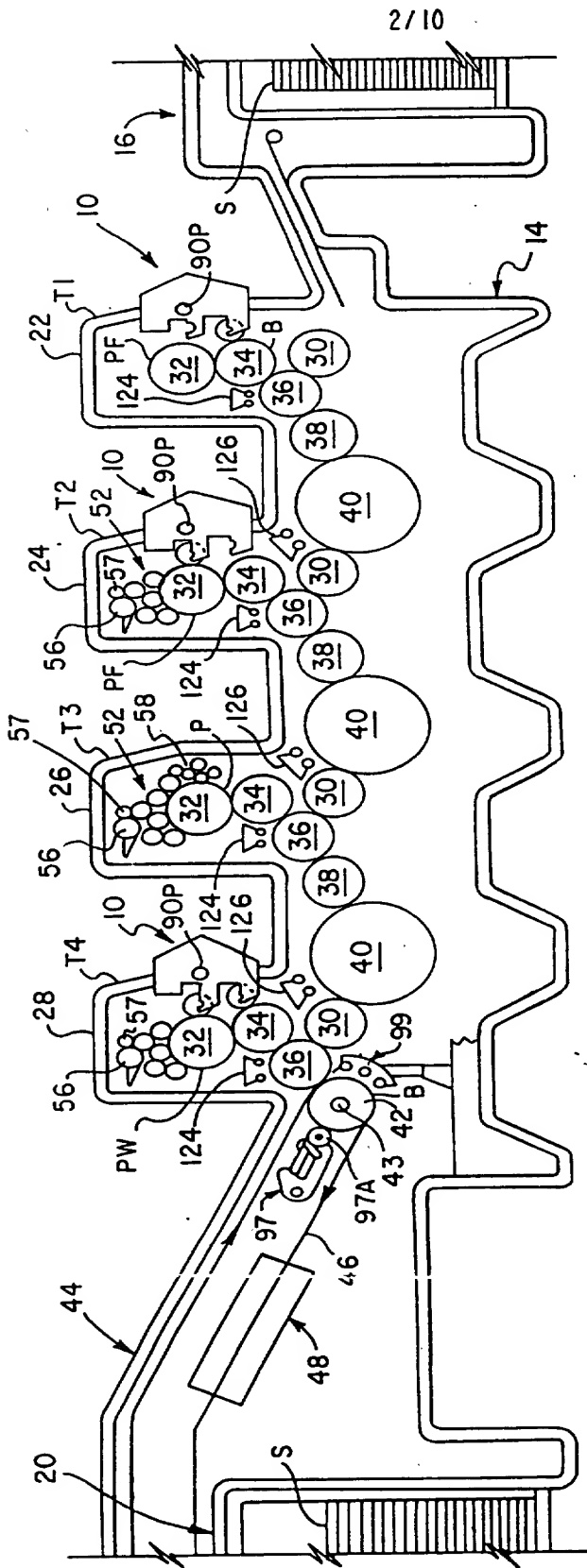
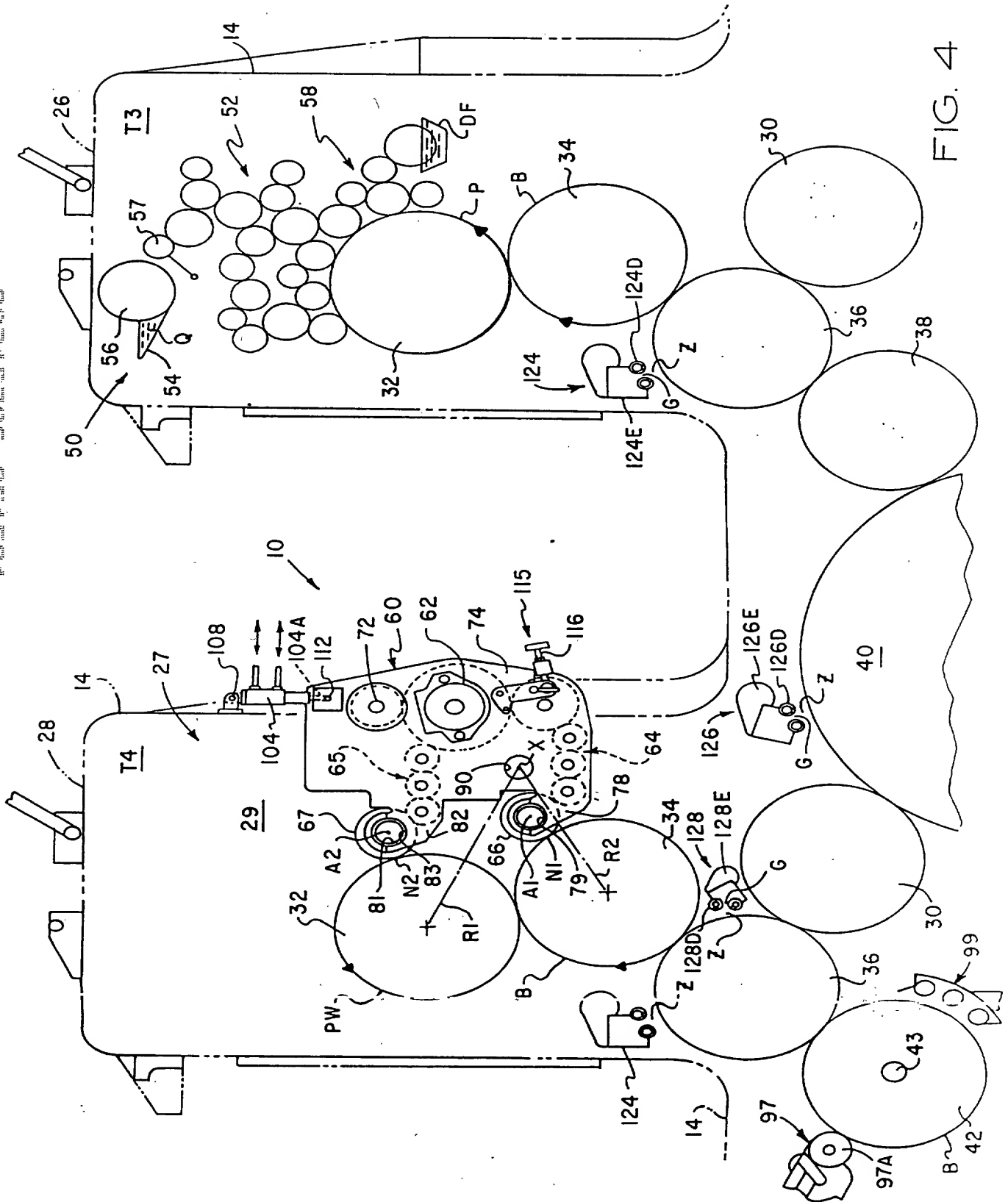


FIG. 3

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FIG. 4



HOWARD W. DEMOORE
RONALD M. RENDLEMAN
JOHN W. BIRD

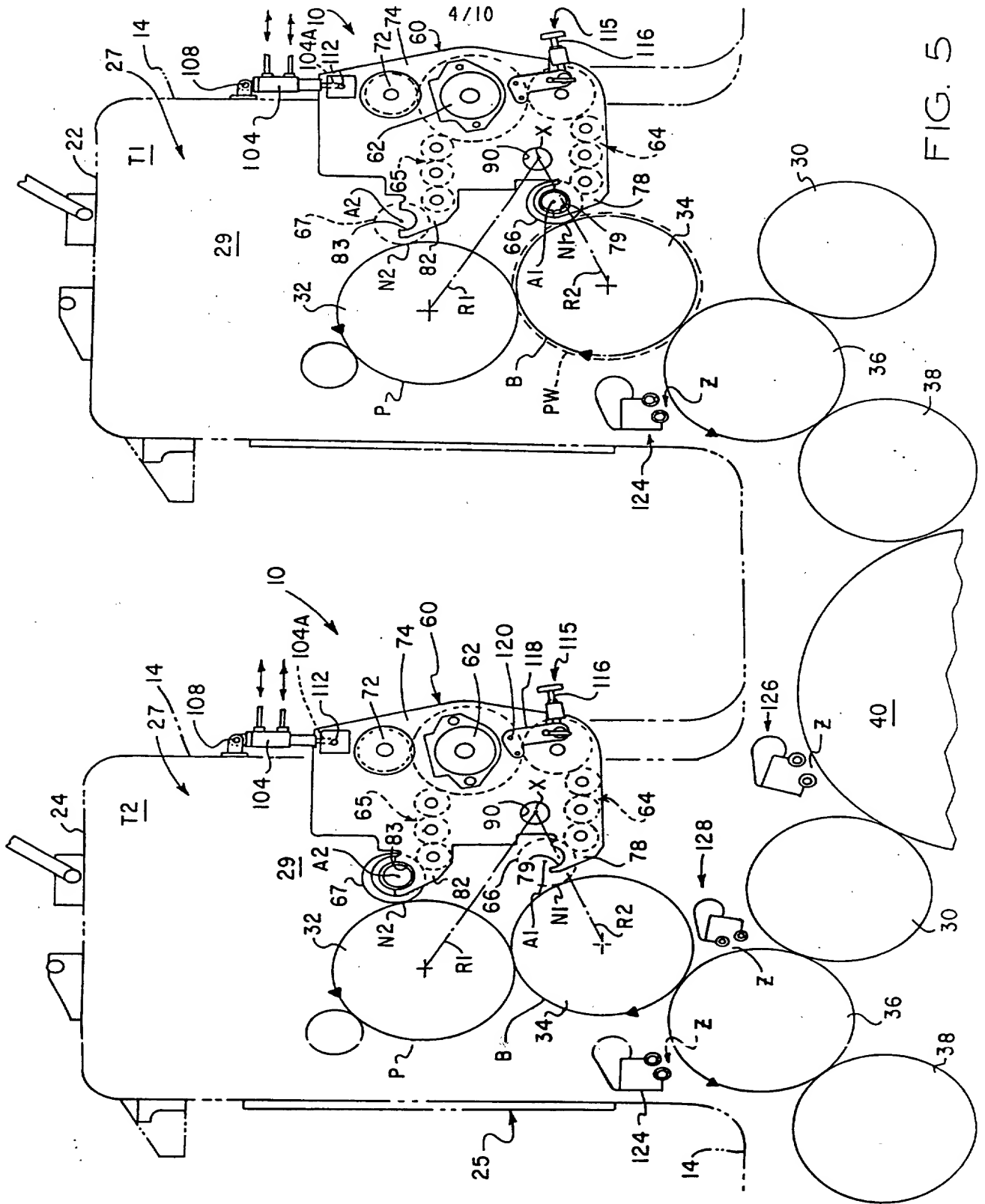


FIG. 5

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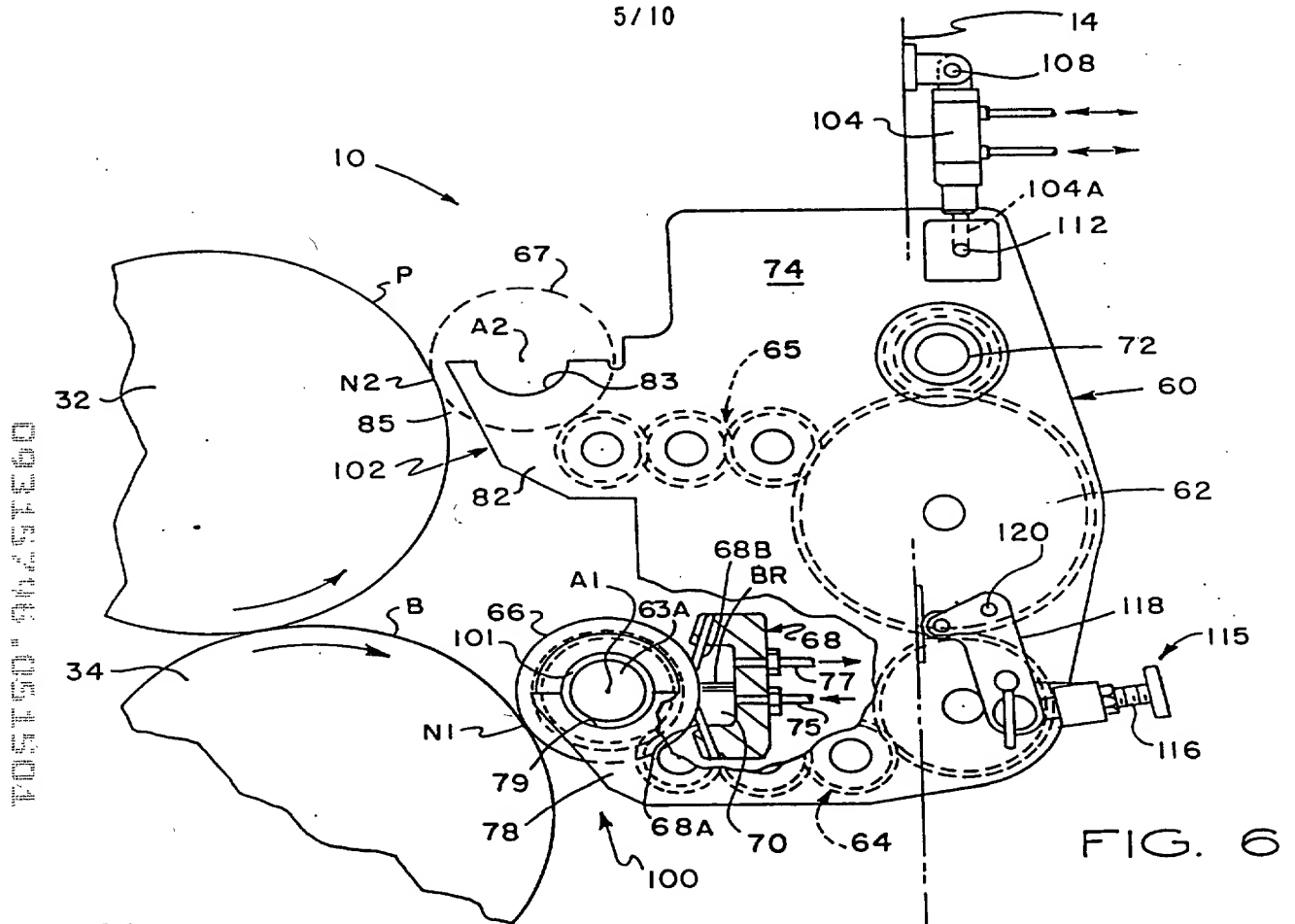


FIG. 6

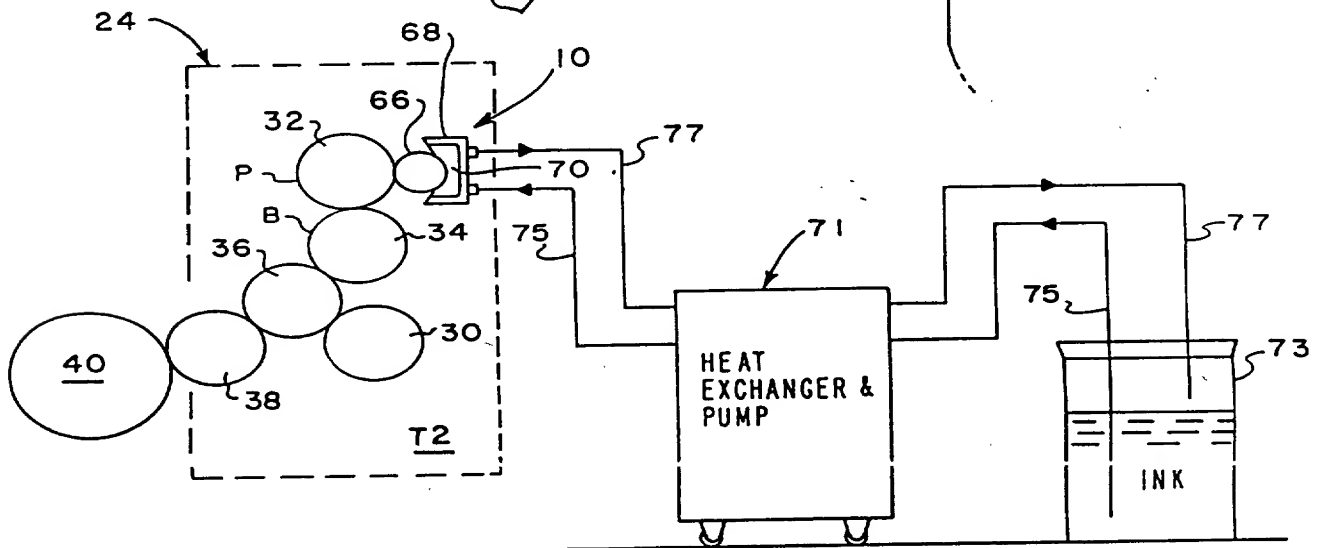


FIG. 7

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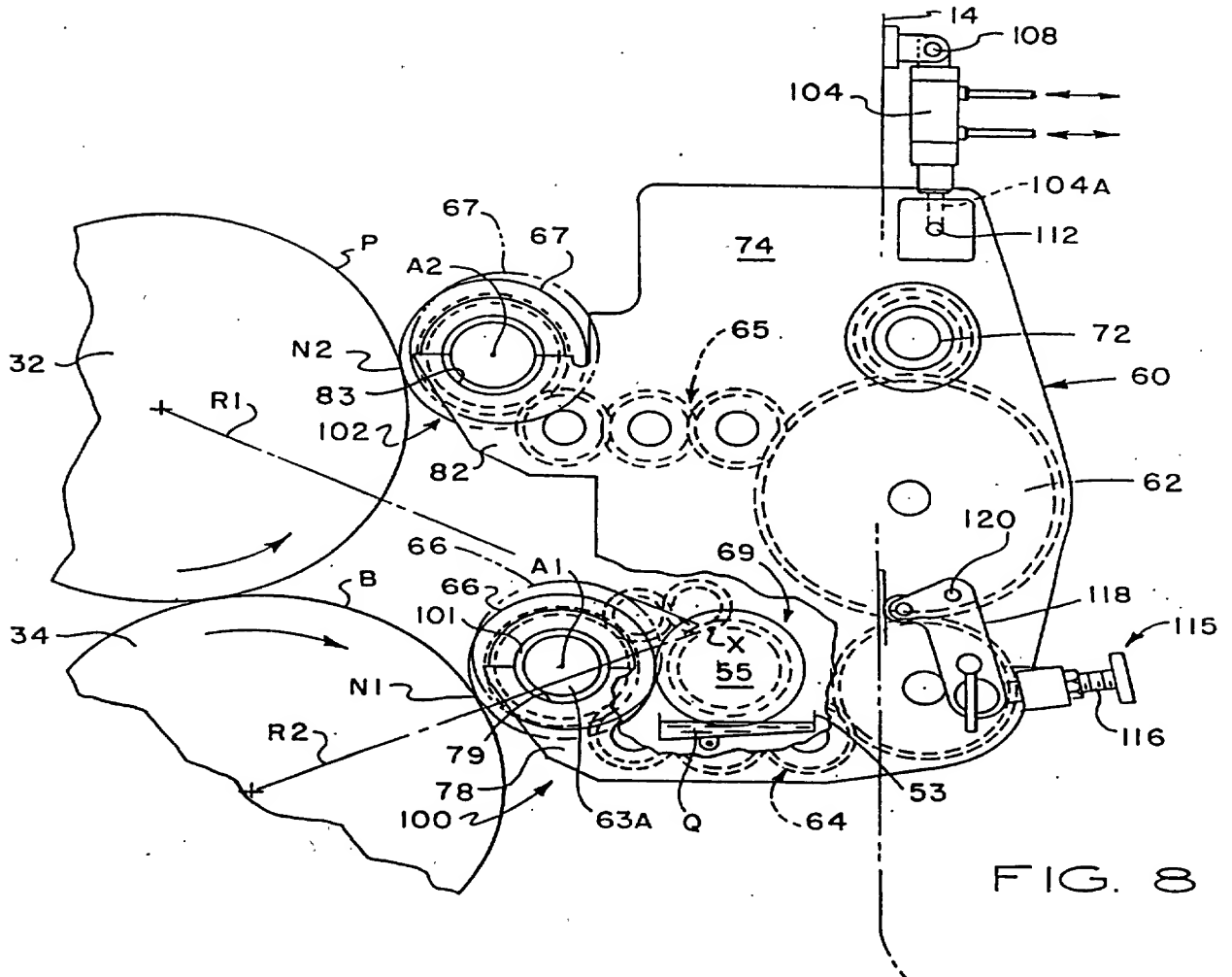


FIG. 8

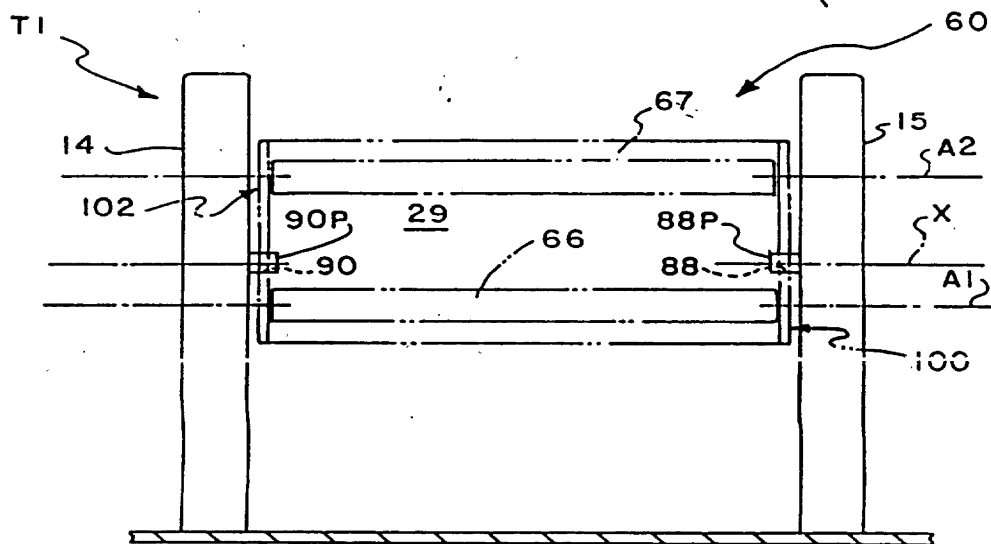


FIG. 9

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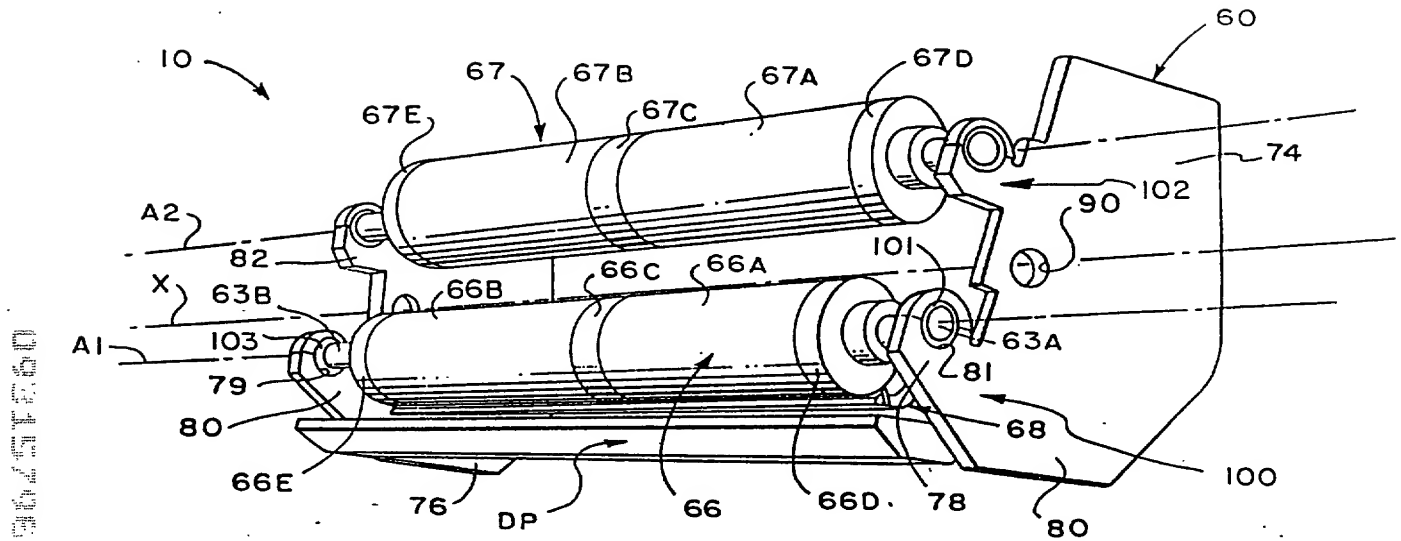


FIG. 10

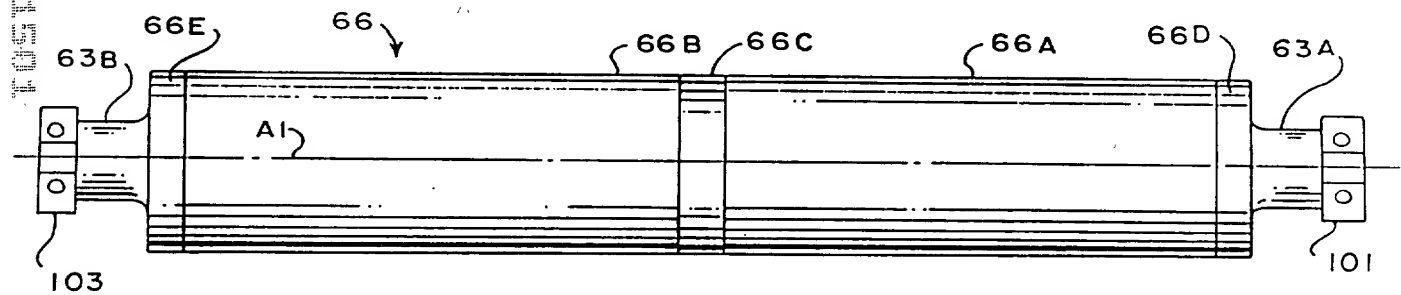


FIG. 11

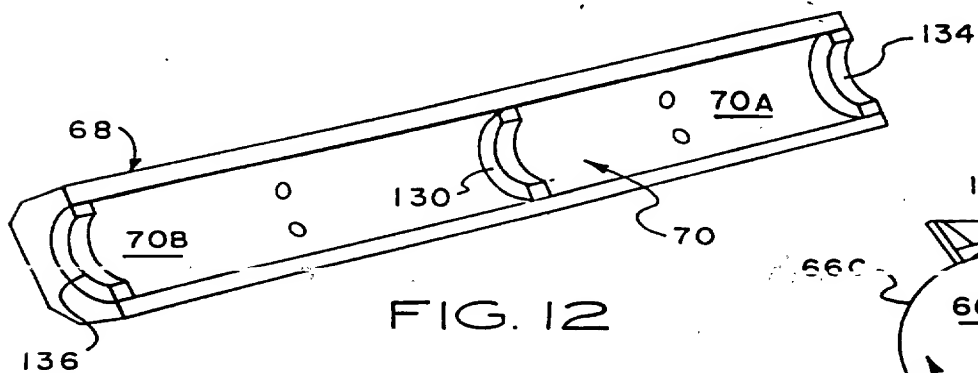


FIG. 12

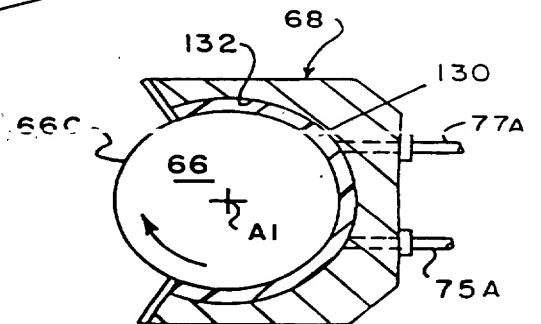
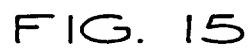


FIG. 13

[illegible]

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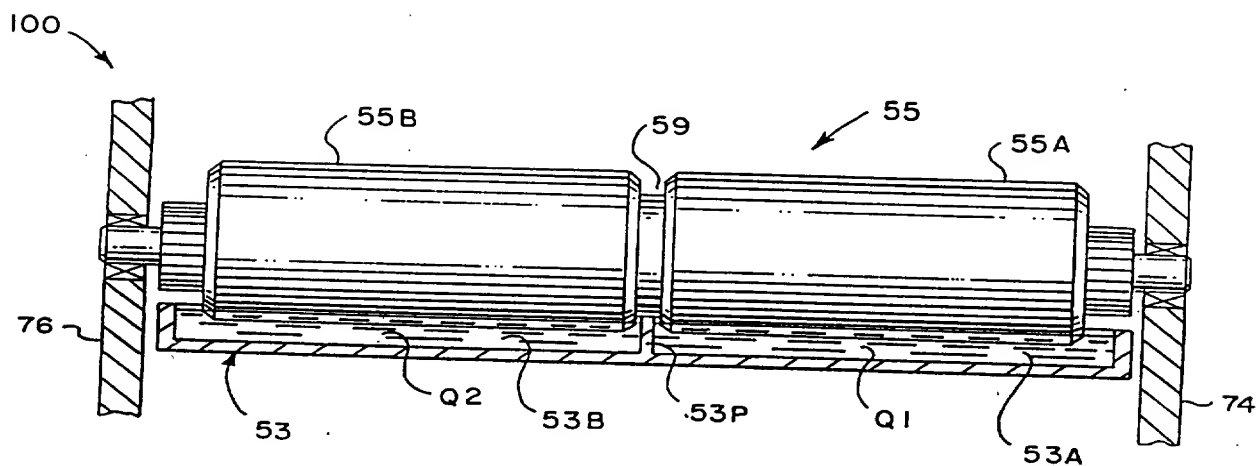
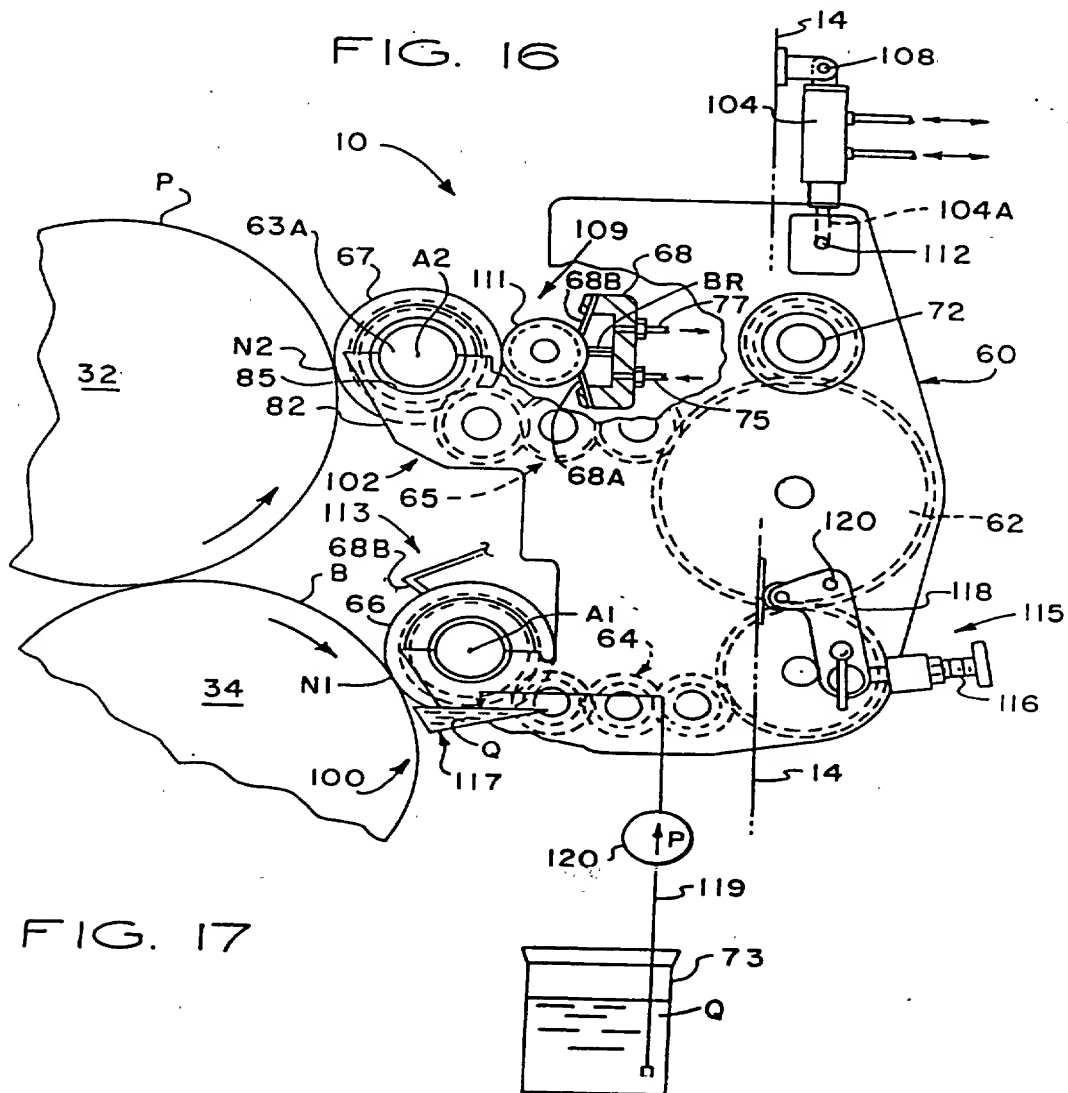


FIG. 16



HOWARD W. DEMOORE
RONALD M. RENDLEMAN
JOHN W. BIRD

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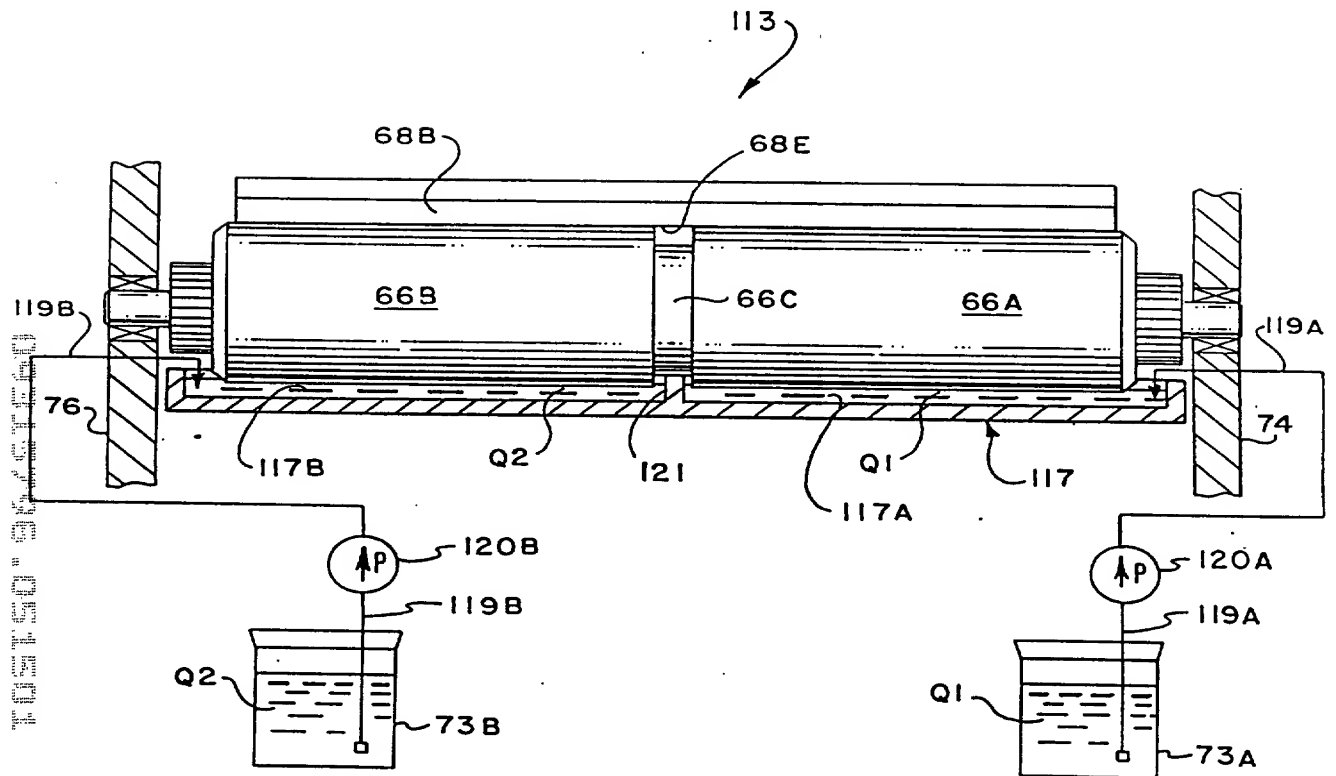


FIG. 18

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**CONTINUATION-IN-PART
DECLARATION AND POWER OF ATTORNEY**

As the below named joint inventors, we hereby declare that:

Our residence, post office address and citizenship are as stated below next to our name,

We believe we are the original, first and joint inventors of the subject matter which is claimed and for which a patent is sought on the invention entitled: "RETRACTABLE PRINTING/COATING UNIT OPERABLE ON THE PLATE AND BLANKET CYLINDERS SIMULTANEOUSLY FROM THE DAMPENER SIDE OF THE FIRST PRINTING UNIT OR ANY CONSECUTIVE PRINTING UNIT OF ANY ROTARY OFFSET PRINTING PRESS", the specification of which is attached hereto.

We hereby state that we have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to herein.

Preliminary Amendment to be filed with application

We acknowledge the duty to disclose to the Office all information known to us to be material to the patentability of this application in accordance with Title 37, Code of Federal Regulations, Section 1.56.

We hereby claim foreign priority benefits under Title 35, United States Code, Section 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

NONE

We hereby claim the benefit under Title 35, United States Code, Section 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, Section 112, we acknowledge the duty to disclose to the Office all information known to us to be material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56 which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

U.S. copending patent application serial number 08/538,422, entitled "RETRACTABLE PRINTING/COATING UNIT OPERABLE ON THE PLATE AND BLANKET CYLINDERS SIMULTANEOUSLY FROM THE DAMPENER SIDE OF THE FIRST PRINTING UNIT OR ANY CONSECUTIVE PRINTING UNIT OF ANY ROTARY

[illegible]

Date _____

Citizenship: United States

Full name of inventor: Ronald M. Rendleman

Date _____

Citizenship: United States

Post Office Address: 4331 Royal Ridge
Dallas, Texas 75229

73310 68699

PATENT

**DECLARATION CLAIMING SMALL ENTITY
STATUS PURSUANT TO 37 CFR 1.9(f) and 1.27 (b)**

INDEPENDENT INVENTOR

As a below named inventor, I hereby declare that:

I qualify as an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying reduced fees under section 41(a) and (b) of Title 35, United States Code, to the Patent and Trademark Office with regard to the invention entitled:

**"RETRACTABLE PRINTING/COATING UNIT OPERABLE ON THE PLATE AND
BLANKET CYLINDERS SIMULTANEOUSLY FROM THE DAMPENER SIDE OF THE
FIRST PRINTING UNIT OR ANY CONSECUTIVE PRINTING UNIT OR ANY ROTARY
OFFSET PRINTING PRESS"**

described in the specification filed herewith.

I have not assigned, granted, conveyed or licensed and am under no obligation under contract of law to assign, grant, convey or license, any rights in the invention to any person who could not be classified as an independent inventor under 37 CFR 1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern or organization to which I have assigned, granted, conveyed, or licensed or am under an obligation under contract or law to assign, grant, convey, or license any rights in the invention is listed below:

- ☐ no such person, concern, or organization.
☒ persons, concerns or organizations listed below*

*NOTE: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27)

Howard W. DeMoore
10954 Shady Trail
Dallas, Texas 75220

Printing Research, Inc.
10954 Shady Trail
Dallas, Texas 75220

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b)).

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

Name and address of inventor: Ronald M. Rendleman
4331 Royal Ridge
Dallas, Texas 75229

Signature

Date

73310 68699

PATENT

**DECLARATION CLAIMING SMALL ENTITY STATUS
PURSUANT TO 37 CFR 1.9(f) and 1.27(c)**

SMALL BUSINESS CONCERN

I hereby declare that I am an officer of the small business concern empowered to act on behalf of the concern identified below:

NAME OF CONCERN: Printing Research, Inc.
ADDRESS OF CONCERN: 10954 Shady Trail
Dallas, Texas 75220

The above identified small concern qualifies as a small business concern as defined in 13 CFR 121.3-18, and reproduced in 37 CFR 1.9(d), for purposes of paying reduced fees under §41(a) and (b) of Title 35, United States Code, in that the number of employees of the concern, including those of its affiliates, does not exceed 500 persons. For purposes of this statement, (1) the number of employees of the business concern is averaged over the previous fiscal year of the concern of the persons employed on a full-time, part-time or temporary basis during each of the pay periods of the fiscal year, and (2) concerns are affiliates of each other when either, directly or indirectly, one concern controls or has the power to control the other, or a third party or parties controls or has the power to control both.

Rights under contract or law have been conveyed to and remain with the small business concern identified above with regard to the invention, entitled:

**RETRACTABLE PRINTING/COATING UNIT OPERABLE ON THE PLATE AND
BLANKET CYLINDERS SIMULTANEOUSLY FROM THE DAMPENER SIDE OF THE
FIRST PRINTING UNIT OR ANY CONSECUTIVE PRINTING UNIT OF ANY ROTARY
OFFSET PRINTING PRESS**

by inventors: Howard W. DeMoore, Ronald M. Rendleman, John W. Bird
described in the specification filed herewith.

Rights held by the above identified small business concern are not exclusive, each individual, concern or organization having rights to the invention is listed below*

Howard W. DeMoore

*NOTE: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities (37 CFR 1.27)

No rights to the invention are held by any person, other than the inventor, who could not qualify as a small business concern under 37 CFR 1.9(d) or by any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. [37 CFR 1.28(b)]

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under § 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

Name and Title: Howard W. DeMoore
President

Address: 10954 Shady Trail
Dallas, Texas 75220

Signature

Date

PATENT APPLICATION FEE DETERMINATION RECORD

Effective October 1, 1997

Application or Docket Number

09/13690/

CLAIMS AS FILED - PART I

(Column 1)

(Column 2)

FOR	NUMBER FILED	NUMBER EXTRA
BASIC FEE		
TOTAL CLAIMS	31 minus 20 =	11
INDEPENDENT CLAIMS	2 minus 3 =	*
MULTIPLE DEPENDENT CLAIM PRESENT		

* If the difference in column 1 is less than zero, enter "0" in column 2

SMALL ENTITY TYPE

RATE	FEE
	395.00
x\$11=	
x41=	
+135=	135
TOTAL	

OR

OTHER THAN SMALL ENTITY

RATE	FEE
	790.00
x\$22=	242
x82=	
+270=	270
TOTAL	1302

CLAIMS AS AMENDED - PART II

(Column 1)

(Column 2)

(Column 3)

AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
Total	31	Minus	30 =
Independent	2	Minus	3 =
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM			

SMALL ENTITY

RATE	ADDITIONAL FEE
x\$11=	
x41=	
+135=	
TOTAL ADDIT. FEE	

OR

OTHER THAN SMALL ENTITY

RATE	ADDITIONAL FEE
x\$22=	
x82=	
+270=	
TOTAL ADDIT. FEE	

AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
Total	*	Minus	** =
Independent	*	Minus	*** =
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM			

RATE	ADDITIONAL FEE
x\$11=	
x41=	
+135=	
TOTAL ADDIT. FEE	

OR

RATE	ADDITIONAL FEE
x\$22=	
x82=	
+270=	
TOTAL ADDIT. FEE	

AMENDMENT C	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
Total	*	Minus	** =
Independent	*	Minus	*** =
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM			

RATE	ADDITIONAL FEE
x\$11=	
x41=	
+135=	
TOTAL ADDIT. FEE	

OR

RATE	ADDITIONAL FEE
x\$22=	
x82=	
+270=	
TOTAL ADDIT. FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
 ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20."
 *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3."
 The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

**MULTIPLE DEPENDENT CLAIM
FEE CALCULATION SHEET
(FOR USE WITH FORM PTO-875)**

SERIAL NO.

09/136901

FILING DATE

8/19/98

APPLICANT(S)

CLAIMS

	AS FILED		AFTER 1st AMENDMENT		AFTER 2nd AMENDMENT	
	IND.	DEP.	IND.	DEP.	IND.	DEP.
1						
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TOTAL IND.	2					
TOTAL DEP.	29					
TOTAL CLAIMS	31					

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	IND.	DEP.	IND.	DEP.	IND.	DEP.
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99						
100						
TOTAL IND.						
TOTAL DEP.						
TOTAL CLAIMS						

SERIAL NUMBER	FILING DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
09/136,901	08/19/98	101	2854	73310-68699

APPLICANT
 HOWARD W. DEMOORE, DALLAS, TX; RONALD M. RENDLEMAN, DALLAS, TX; JOHN W. BIRD, CARROLLTON, TX.

****CONTINUING DOMESTIC DATA*******
 VERIFIED THIS APPLN IS A CIP OF 08/538,422 10/02/95 ABN
 WHICH IS A CIP OF 08/435,798 05/04/95
[Signature]

****371 (NAT'L STAGE) DATA*******
 VERIFIED
[Signature]

****FOREIGN APPLICATIONS*******
 VERIFIED
[Signature]

FOREIGN FILING LICENSE GRANTED 10/01/98

Foreign Priority claimed 35 USC 1.19 (a-d) conditions met <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Met after Allowance Verified and Acknowledged <i>[Signature]</i> Examiner's Initials _____ Initials _____	STATE OR COUNTRY TX	SHEETS DRAWING 810	TOTAL CLAIMS 31	INDEPENDENT CLAIMS 2
---	------------------------	-----------------------	--------------------	-------------------------

ADDRESS
 HARRY J WATSON
 LOCKE PURNELL RAIN HARRELL
 2200 ROSS AVE
 SUITE 2200
 DALLAS TX 75201

TITLE
 RETRACTABLE PRINTING/COATING UNIT OPERABLE ON THE PLATE AND BLANKET CYLINDERS SIMULTANEOUSLY FROM THE DAMPENER SIDE OF THE FIRST PRINTING UNIT OR ANY CONSECUTIVE PRINTING UNIT OR ANY ROTARY OFFSET PRINTING PRESS

FILING FEE RECEIVED \$1,367	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT NO. _____ for the following:	<input type="checkbox"/> All Fees <input type="checkbox"/> 1.16 Fees (Filing) <input type="checkbox"/> 1.17 Fees (Processing Ext. of time) <input type="checkbox"/> 1.18 Fees (Issue) <input type="checkbox"/> Other _____ <input type="checkbox"/> Credit
--------------------------------	---	---

09/136,901

Small entity

POSTED: 95257600

45

73310 66309

#4/A
8-24-99
Jum

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Serial Number:

Filing Date:

Applicant: Howard W. DeMoore, et al.

Title: Retractable Printing/Coating Unit Operable on the Plate and Blanket Cylinders Simultaneously from the Dampener Side of the First Printing Unit or any Consecutive Printing Unit or any Rotary Offset Printing Press

Group Art Unit:

Examiner:

Assistant Commissioner of Patents
Washington, D. C. 20231

Sir:

PRELIMINARY AMENDMENT

The above-identified application is being filed as a continuation-in-part application of prior pending application serial number 08/538,422 filed October 2, 1995.

Before calculating the filing fee, please amend the application as follows:

In the Specification

After the Title, insert the following:

09136901.081998
08/538,422

Cross Reference to Other Applications

This application is a continuation-in-part of prior copending application serial number 08/538,422 filed October 2, 1995 ^{re abandoned} by inventors Howard W. DeMoore, Ronald M. Rendleman and John W. Bird which in turn was a continuation-in-part of prior parent application serial number 08/435,798, titled "Retractable Inking/Coating Apparatus Having Ferris Movement Between Printing Units", filed May 4, 1995 by the same inventors for which priority benefit under § 120 is claimed.

In the Claims

Before calculating the filing fee, please cancel claims 1 - ³¹~~46~~ and substitute the following claims 1 - 26:

In a rotary offset printing press having first and second side frame members and a plurality of printing units each having a plate cylinder, a blanket cylinder, and an impression cylinder supported for rotation in operable combination, the printing units having a delivery side and a dampener side opposite the delivery side, an interunit operator space between printing units and a dampener or a space for a dampener on the dampener side of each unit, the improvement comprising:

a printing apparatus for inking or coating, the printing apparatus having a frame movably coupled to at least one printing unit in the space for a dampener, the printing apparatus being movable between an on-impression operative position and an off-impression retracted position;

the movable frame supporting a removable first applicator roller and a removable second applicator roller, the first applicator roller, being supported for adjustment into and out of ink or coating association with the plate cylinder and the second applicator roll being supported for adjustment into and out of ink or coating association with the blanket cylinder, when the printing apparatus is moved respectively to the on-impression operative position and the off-impression retracted position;

whereby a continuous or spot film of ink or coating can be applied simultaneously by the printing apparatus to a plate on the plate cylinder and the blanket cylinder and ink or coating can be selectively applied to the plate cylinder or blanket cylinder or a plate mounted thereon if one of the first or second applicator rollers is removed from the frame.

The invention as set forth in Claim 1 wherein the printing apparatus includes:

a doctor blade assembly having a reservoir for receiving ink or coating material coupled to the first or second applicator roll.

The invention as set forth in Claim 2, the applicator roller comprising:

a roller having a resilient transfer surface.

The invention as set forth in Claim 3, including:

first and second pivot pins mounted on the first and second side frame members, respectively, said pivot pins extending in alignment with the rotational axis of the plate and blanket cylinders; and

the printing apparatus being pivotally coupled for rotational movement on the pivot pins.

B 536.5. 132 The invention as set forth in Claim 4, further comprising:

a power actuator pivotally coupled to the printing unit, the power actuator having a power transfer arm which is extendable and retractable; and,

apparatus coupled to the power transfer arm and to the printing apparatus for converting extension or retraction movement of the power transfer arm into pivotal movement of the printing apparatus relative to the plate and blanket cylinder.

6 37.8. 536 The invention as set forth in Claim 5, in which the movement converting apparatus comprises:

a bell crank plate having a first end portion pivotally coupled to the printing apparatus for engaging the printing unit and having a second end portion for engaging a stop member; and,

a stop member coupled to the inking or coating apparatus for engaging the second end portion of the bell crank plate.

7 38.7. 132 The invention as set forth in Claim 6, the printing apparatus comprising:

the movable frame having first and second side support members;

the ink or coating applicator rollers being mounted between the first side support member and second side support member and having a reservoir or fountain pan for receiving ink or coating material;

cradle means mounted on the first and second side support members, respectively
for removably supporting the first and second applicator rollers in the movable frame;

power transfer means coupled to the applicator rollers for rotation thereof.

The invention as set forth in Claim ^{7 38} 7,

the cradle means including a first cradle assembly disposed on the first and second
side support members, respectively, and a second cradle assembly disposed on the first
and second side support members, respectively;

the first applicator roller is mounted for rotation on the first cradle assembly; and

the second applicator roller is mounted for rotation on the second cradle assembly.

The invention as set forth in Claim ^{1 32} 1 wherein a container means for containing

liquid ink or coating material and means for applying ink or coating material from the container
means to a peripheral surface portion of the first and second applicator ^{rollers} is provided and
supported by the printing apparatus.

The invention as set forth in Claim ^{9 40} 9 wherein the container means comprises a
doctor blade assembly having a reservoir or fountain pan for supplying ink or coating material
to each of said applicator rollers, and having a doctor blade disposed for wiping engagement
with each of said applicator rollers when it is received in rolling contact with ink or coating
material in the reservoir or pan.

The invention as set forth in Claim ^{40 9} 9, wherein the container means comprises a
fountain pan and the inking applying means comprises a pan for transferring ink or coating
material from the fountain pan to said first and second applicator rollers.

12
343
12. B A rotary offset printing press having a printing unit of the type having a delivery side and a dampener side, said dampener side having a dampener space for receiving a dampener, comprising, in combination:

5 a plate cylinder mounted on the printing unit between the delivery side and the dampener side, and a printing plate mounted on the plate cylinder;

a blanket cylinder having an ink or coating receptive blanket disposed in ink or coating transfer engagement with the plate for transferring ink or coating material from the image surface areas of the printing plate to the ink or coating receptive blanket;

10 an impression cylinder disposed adjacent the blanket cylinder thereby forming a nip between the blanket and the impression cylinder whereby the printing ink or coating material is transferred from the blanket to a substrate as the substrate is transferred through the nip;

support means mounted on the dampener side of the printing unit;

15 an inking or coating apparatus having a removable first applicator roller and a removable second applicator roller, being positioned in the dampener space in place of a dampener, the inking or coating apparatus being coupled to the support means for movement between an on-impression operative position and an off-impression retracted position wherein the first applicator roller is adjustably supported for movement into and out of ink or coating association with the plate on the plate cylinder while the second applicator roller is adjustably supported for simultaneous movement into and out of ink or coating association with the blanket on the blanket cylinder; and

20

whereby a continuous or spot film of ink or coating can be applied by the inking and coating apparatus to a plate on the plate cylinder and a blanket on the blanket cylinder and ink or coating can be selectively applied to the plate on the plate cylinder or the blanket cylinder blanket or a plate thereon.

¹³~~44~~ 13. The invention as defined in Claim ^{12 45}~~12~~ wherein the plate cylinder, blanket cylinder, impression cylinder and inking or coating apparatus forms a first printing unit, the printing press having a second printing unit for printing or coating the substrate subsequently to the first printing unit, the printing press further including:

5 a dryer mounted on the printing press for discharging heated air onto a freshly printed or coated substrate from the first printing unit before the freshly printed or coated substrate is subsequently printed, coated or otherwise processed in the second printing

¹⁴~~45~~ unit.

¹³~~44~~ 14. The invention as defined in Claim ¹³~~13~~ wherein:

the dryer is mounted adjacent to the impression cylinder for discharging heated air onto a freshly printed or coated substrate while the substrate is in contact with the

¹⁵~~46~~ impression cylinder.

¹³~~44~~ 15. The invention as defined in Claim ¹³~~13~~ comprising:

an extractor coupled to the dryer for extracting hot air, moisture, odors and volatiles from an exposure zone between the dryer and the freshly printed or coated substrate.

B ¹⁶~~47~~ 16. The invention as defined in Claim ¹²~~12~~ wherein the printing press has an interunit position, comprising:

a transfer cylinder disposed in the interunit position on the press and coupled in sheet transfer relation with the impression cylinder; and

5 an interunit dryer disposed adjacent the transfer cylinder for discharging heated air onto a freshly printed or coated substrate after it has been transferred from the impression cylinder and while it is in contact with the transfer cylinder.

B ¹⁷~~48~~ 17. A printing press as defined in Claim ¹²~~12~~ wherein the plate cylinder, blanket cylinder, impression cylinder, support means and inking or coating apparatus form a first printing unit, the printing press having a second printing unit including a plate cylinder, a blanket cylinder and an impression cylinder in operable combination, further including:

Q2 a transfer drum coupled in substrate transfer relation with the impression cylinder of the first printing unit and in substrate transfer relation with the impression cylinder of the second printing unit;

10 a first dryer mounted adjacent the impression cylinder of the first printing unit for discharging heated air onto a freshly printed or coated substrate while the substrate is in contact with the impression cylinder of the first printing unit;

a second dryer mounted adjacent the transfer drum for discharging heated air onto a freshly printed or coated substrate after it has been transferred from the impression cylinder of the first printing unit and while it is in contact with the transfer cylinder; and,

a third dryer disposed adjacent the impression cylinder of the second printing unit for discharging heated air onto a freshly printed or coated substrate after it has been transferred from the transfer drum and while it is in contact with the impression cylinder

¹⁸ of the second printing unit.

¹²
~~43~~
18. The invention as defined in Claim ~~12~~ wherein the inking or coating apparatus includes:

first cradle means for supporting the first applicator roller for engagement with the plate when the inking or coating apparatus is in the operative position; and,

second cradle means for supporting the second applicator roller for engagement

with the blanket when the inking or coating apparatus is in the operative position.

¹⁹
~~50~~
19. The invention as defined in Claim ~~12~~, said support means comprising:

first and second pivot means mounted on ~~the~~ first and second side frame members, respectively.

²⁰
~~51~~
20. The invention as defined in Claim ~~12~~, further comprising:

a power actuator pivotally coupled to the inking or coating apparatus, the power actuator having a power transfer arm which is selectively extendable or retractable; and,

apparatus coupled to the power transfer arm and to the inking or coating apparatus

for converting extension or retraction movement of the power transfer arm into pivotal movement of the inking or coating apparatus relative to the printing unit.

a pan roller mounted for rotation in the fountain pan and coupled to the applicator roller for transferring ink or coating material from the fountain pan to the applicator roller.

²⁵
~~56~~ 25. A printing press as defined in any one of Claims ^{1 3C 12} ~~1~~ or ⁴³ ~~12~~ characterized in that:

a resilient packing is mounted on the blanket cylinder, and a printing plate is

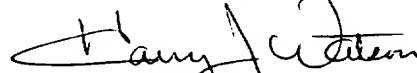
²⁶
~~57~~ 26. mounted on the resilient packing.

^{1 12}
~~30 43~~ 26. A printing press as defined in any one of Claims ^{1 12} ~~1~~ or ⁴³ ~~12~~ further including means for applying ink or coating material to the first and second applicator rollers, and the inking or coating apparatus is pivotally mounted on the printing unit in a position in which the nip contact point between the applicator rollers and the blanket and plate cylinders is offset with respect to a radius line projecting through the center of the plate cylinder and blanket cylinder to the axis of pivotal motion of the inking or coating apparatus.

The Commissioner is hereby authorized to charge any additional fees connected with this communication or credit any overpayment to Deposit Account No. 12-1781. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

LOCKE PURNELL RAIN HARRELL



Harry J. Watson
Reg. No. 29,985

July 27, 1998

2200 Ross Avenue, Suite 2200
Dallas, Texas 75201
214/740-8000 Telephone
214/740-8800 Facsimile

United States Patent & Trademark Office
Office of Initial Patent Examination - Document Preparation



JCS11 U.S. PTO

09/136901



08/19/98

S/N

Unscannable Application paper found during Document Preparation:

Type of Document

- | | |
|--|---|
| <input type="checkbox"/> Transmittal Letter | <input type="checkbox"/> Oath or Declaration |
| <input checked="" type="checkbox"/> Small Entity Statement | <input checked="" type="checkbox"/> Drawing sheet(s) <u>8</u> |
| <input type="checkbox"/> Preliminary Amendment | <input type="checkbox"/> Biotech Listings |
| <input type="checkbox"/> Specification page(s) _____ | <input type="checkbox"/> Computer Listings |
| <input type="checkbox"/> Claims | <input type="checkbox"/> Non-English Specification |
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Application papers are not suitable for scanning and are not in compliance with 37 CFR 1.52 because:

- | | |
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| <input checked="" type="checkbox"/> <u>Legal-size</u>
(8 1/2" x 14") | - All sheets must be either A4 (21 cm x 29.7 cm) or 8-1/2" x 11" |
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| <input type="checkbox"/> <u>Two-Column Specification</u> - | Format can not be electronically reproduced |
| <input type="checkbox"/> <u>Hand-written</u> - | Papers are not typewritten or mechanically produced |
| <input type="checkbox"/> <u>Glossy pages</u> - | Papers are not non-shiny |
| <input type="checkbox"/> <u>Non-white background</u> - | Papers are not white, e.g. photocopies of photographs |



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NUMBER	FILING/RECEIPT DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO./TITLE
--------------------	---------------------	-----------------------	---------------------------

DATE MAILED:

NOTICE TO FILE MISSING PARTS OF APPLICATION
Filing Date Granted

An Application Number and Filing Date have been assigned to this application. The items indicated below, however, are missing. Applicant is given TWO MONTHS FROM THE DATE OF THIS NOTICE within which to file all required items and pay fees required below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a). If any of items 1 or 3 through 5 are indicated as missing, the SURCHARGE set forth in 37 CFR 1.16(e) of ☐ \$65.00 for a small entity in compliance with 37 CFR 1.27, or ☐ \$130.00 for a non-small entity, must also be timely submitted in reply to this NOTICE to avoid abandonment.

If all required items on this form are filed within the period set above, the total amount owed by applicant as a

☐ small entity (statement filed) ☒ non-small entity is \$ _____.

☐ 1. The statutory basic filing fee is:

- ☐ missing.
- ☐ insufficient.

Applicant must submit \$ _____ to complete the basic filing fee and/or file a small entity statement claiming such status (37 CFR 1.27).

☐ 2. Additional claim fees of \$ _____, including any multiple dependent claim fees, are required.

\$ _____ for _____ independent claims over 3.

\$ _____ for _____ dependent claims over 20.

\$ _____ for multiple dependent claim surcharge.

Applicant must either submit the additional claim fees or cancel additional claims for which fees are due.

☐ 3. The oath or declaration:

- ☐ is missing or unexecuted.
- ☐ does not cover the newly submitted items.
- ☐ does not identify the application to which it applies.
- ☐ does not include the city and state or foreign country of applicant's residence.

An oath or declaration in compliance with 37 CFR 1.63, including residence information and identifying the application by the above Application Number and Filing Date is required.

☐ 4. The signature(s) to the oath or declaration is/are by a person other than inventor or person qualified under 37 CFR 1.42, 1.43 or 1.47.

A properly signed oath or declaration in compliance with 37 CFR 1.63, identifying the application by the above Application Number and Filing Date, is required.

☐ 5. The signature of the following joint inventor(s) is missing from the oath or declaration:

An oath or declaration in compliance with 37 CFR 1.63 listing the names of all inventors and signed by the omitted inventor(s), identifying this application by the above Application Number and Filing Date, is required.

☐ 6. A \$50.00 processing fee is required since your check was returned without payment (37 CFR 1.21(m)).

☐ 7. Your filing receipt was mailed in error because your check was returned without payment.

☐ 8. The application does not comply with the Sequence Rules.

See attached "Notice to Comply with Sequence Rules 37 CFR 1.821-1.825."

☐ 9. OTHER: _____

Direct the reply and any questions about this notice to "Attention: Box Missing Parts."

A copy of this notice MUST be returned with the reply.

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Initial Patent Examination Division (703) 308-1202

PART 3 - OFFICE COPY



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Washington, D.C. 20231

APPLICATION NUMBER	FILING/RECEIPT DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO./TITLE
--------------------	---------------------	-----------------------	---------------------------

042457406-054

MARKY L. WILSON
LOCKE HUBBELL RAIN MARKELL
2200 ROSS AVE
SUITE 1200
DALLAS TX 75201

02311001

NOT ASSIGNED

#3

2854

DATE MAILED:

10/01/98

NOTICE TO FILE MISSING PARTS OF APPLICATION
Filing Date Granted

An Application Number and Filing Date have been assigned to this application. The items indicated below, however, are missing. Applicant is given **TWO MONTHS FROM THE DATE OF THIS NOTICE** within which to file all required items and pay fees required below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a). If any of items 1 or 3 through 5 are indicated as missing, the **SURCHARGE** set forth in 37 CFR 1.16(e) of ☐ \$65.00 for a small entity in compliance with 37 CFR 1.27, or ☐ \$130.00 for a non-small entity, must also be timely submitted in reply to this NOTICE to avoid abandonment.

If all required items on this form are filed within the period set above, the total amount owed by applicant as a ☐ small entity (statement filed) ☒ non-small entity is \$ 20.

- ☐ 1. The statutory basic filing fee is:
☐ missing.
☐ insufficient.

Applicant must submit \$ _____ to complete the basic filing fee and/or file a small entity statement claiming such status (37 CFR 1.27).

- ☐ 2. Additional claim fees of \$ _____, including any multiple dependent claim fees, are required.
\$ _____ for _____ independent claims over 3.
\$ _____ for _____ dependent claims over 20.
\$ _____ for multiple dependent claim surcharge.

Applicant must either submit the additional claim fees or cancel additional claims for which fees are due.

- ☐ 3. The oath or declaration:
☐ is missing or unexecuted.
☐ does not cover the newly submitted items.
☐ does not identify the application to which it applies.
☐ does not include the city and state or foreign country of applicant's residence.

An oath or declaration in compliance with 37 CFR 1.63, including residence information and identifying the application by the above Application Number and Filing Date is required.

- ☐ 4. The signature(s) to the oath or declaration is/are by a person other than inventor or person qualified under 37 CFR 1.42, 1.43 or 1.47.
A properly signed oath or declaration in compliance with 37 CFR 1.63, identifying the application by the above Application Number and Filing Date, is required.

- ☒ 5. The signature of the following joint inventor(s) is missing from the oath or declaration:

ALL INVENTORS
An oath or declaration in compliance with 37 CFR 1.63 listing the names of all inventors and signed by the omitted inventor(s), identifying this application by the above Application Number and Filing Date, is required.

- ☐ 6. A \$50.00 processing fee is required since your check was returned without payment (37 CFR 1.21(m)).
☐ 7. Your filing receipt was mailed in error because your check was returned without payment.
☐ 8. The application does not comply with the Sequence Rules.
See attached "Notice to Comply with Sequence Rules 37 CFR 1.821-1.825."
☐ 9. OTHER:

Direct the reply and any questions about this notice to "Attention: Box Missing Parts."

A copy of this notice MUST be returned with the reply.

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Initial Patent Examination Division (703) 308-1202

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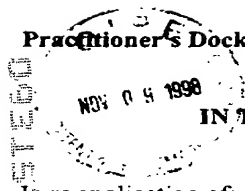
11/16/1998 WILLIAM 00000107 0913690
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TOP SECRET

Section \$

Practitioner's Docket No. 73310 68699

PATENT



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: DeMoore, Howard W.; Rendleman, Ronald M.; and Bird, John W.

Serial No.: 09/136.901

Group No.: 2854

Filed: 08/19/1998

Examiner:

For: Retractable Printing/Coating Unit Operable on the Plate and Blanket Cylinders Simultaneously from the Dampener Side of the First Printing Unit or any Consecutive Printing Unit or Rotary Offset Printing Press

Box Missing Part
Assistant Commissioner for Patents
Washington, D.C. 20231

COMPLETION OF FILING REQUIREMENTS
—NONPROVISIONAL APPLICATION

I. This replies to the Notice to File Missing Parts of Application (PTO-1533) mailed October 1, 1998.

A copy of the Notice to File Missing Parts of Application—Filing Date Granted (Form PTO-1533) is enclosed.

CERTIFICATE OF MAILING/TRANSMISSION (37 C.F.R. 1.8a)

I hereby certify that this correspondence is, on the date shown below, being:

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deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231.

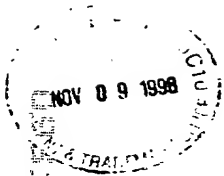
FACSIMILE



transmitted by facsimile to the Patent and Trademark Office.

Date: 11-5-98

Leslie A. Cowling
Signature
Leslie A. Cowling
(type or print name of person certifying)



Total completion fees \$65.00

TOTAL FEE DUE

II. The total fee due is:

Completion fees \$65.00

Total Fee Due \$65.00
PAYMENT OF FEES

III. Enclosed is a check in the amount of \$65.00.

A duplicate of this request is attached.

Please charge Account No. 12-1781 for any additional payment that may be due or credit any overpayment.

SIGNATURE OF PRACTITIONER

Harry J. Watson

Reg. No.: 29,985

Locke Purnell Rain Harrell

2200 Ross Ave, Suite 2200

Dallas, TX 75201

Tel. No.: (214) 740-8000

Customer No.: 20873

THE BIBLE



Practitioner's Docket No. 73310 68699

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Re application of: DeMoore, Howard W.; Rendleman, Ronald M.; and Bird, John W.

Application No.: 09/136,901

Group No.: 2854

Filed: August 19, 1998

Examiner:

For: Retractable Printing/Coating Unit Operable on the Plate and Blanket Cylinders Simultaneously from the Dampener Side of the First Printing Unit or any Consecutive Printing Unit or Rotary Offset Printing Press

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Assistant Commissioner for Patents
Washington, D.C. 20231

MAR 24 1999

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TRANSMITTAL OF INFORMATION DISCLOSURE STATEMENT
WITHIN THREE MONTHS OF FILING OR
BEFORE MAILING OF FIRST OFFICE ACTION (37 C.F.R. 1.97(b))

IDENTIFICATION OF TIME OF FILING THE ACCOMPANYING
INFORMATION DISCLOSURE STATEMENT

The information disclosure statement submitted herewith is being filed within three months of the filing date of the application or date of entry into the national stage of an international application or before the mailing date of a first Office action on the merits, whichever event occurs last, 37 C.F.R. 1.97(b).

SIGNATURE OF PRACTITIONER

Watson, Harry J.

Reg. No. 29,985

Locke Liddell & Sapp LLP

2200 Ross Ave, Suite 2200

Dallas, TX 75201

Tel. No.: (214) 740-8000

Customer No.: 20873

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Date: _____

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(type or print name of person certifying)

(Transmittal of Information Disclosure Statement Within Three Months of Filing or Before Mailing of First Office Action)

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Substitute for form 1449A/PTO

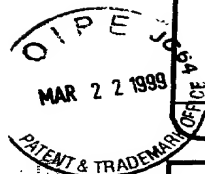
INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet 1 of 2

Complete if Known

Application Number 09/136,901
Filing Date 08/19/1998
First Named Inventor Howard W. DeMoore
Group Art Unit 2854
Examiner Name
Attorney Docket Number 73310 68699



U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	U.S. Patent Document Number	Kind Code ² (if known)	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
P2	1	3,397,675		DeLigt	08/20/1968	
	2	3,768,438		Kumpf	10/30/1973	
	3	3,433,155		Norton	03/18/1969	
	4	3,800,743		Egnaczak	04/02/1974	
	5	3,916,824		Knodel et al.	11/04/1975	
	6	3,931,791		Preuss et al.	01/13/1976	
	7	4,270,483		Butler et al.	06/02/1981	
	7	4,372,244		Rebel	02/08/1983	
	9	4,397,237		Makosch	08/09/1983	
	10	4,399,767		Simeth	08/23/1983	
	11	4,446,814		Abendroth et al.	05/08/1984	
	12	4,501,223		Matsuno et al.	02/26/1985	
	13	4,524,712		Ito	06/25/1985	
	14	4,569,306		Ito et al.	02/11/1986	
	15	4,615,293		Jahn	10/07/1986	
	16	4,685,414		DiRico	08/11/1987	
	17	4,706,601		Jahn	11/17/1987	
	18	4,796,556		Bird	01/10/1989	
	19	4,815,413		Kota	03/28/1989	
P2	20	4,825,804		DiRico et al.	05/02/1989	

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FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Foreign Patent Document Office ³	Number ⁴	Kind Code ⁵ (if known)	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	Ts

Examiner Signature

[Signature]

Date

Considered

4/2/99

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² See attached Kinds of U.S. Patent Documents. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

THESE



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

NOTICE OF ALLOWANCE AND ISSUE FEE DUE

HARRY C. WATSON
10011 PHILADELPHIA BLVD
02100 QUINCY, MA
01913-0001
PATENT & TRADEMARK OFFICE

MAIL ROOM

APPLICATION NO.	FILING DATE	TOTAL CLAIMS	EXAMINER AND GROUP ART UNIT	DATE MAILED		
0921 00000	001 10/01/80	006	1 10/01/80	10/01/80		
First Named Applicant	WATSON, HARRY C.	10011 PHILADELPHIA BLVD, QUINCY, MA 01913-0001				
TITLE OF INVENTION: A METHOD FOR THE PRODUCTION OF A POLYMERIZATION PRODUCT						
ATTY'S DOCKET NO.	CLASS-SUBCLASS	BATCH NO.	APPLN. TYPE	SMALL ENTITY	FEE DUE	DATE DUE
0921 00000	001 10/01/80	006	1 10/01/80	NO	100.00	10/01/80

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED.

THE ISSUE FEE MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED.

HOW TO RESPOND TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

- A. If the status is changed, pay twice the amount of the FEE DUE shown above and notify the Patent and Trademark Office of the change in status, or
- B. If the status is the same, pay the FEE DUE shown above.

If the SMALL ENTITY is shown as NO:

- A. Pay FEE DUE shown above, or
- B. File verified statement of Small Entity Status before, or with, payment of 1/2 the FEE DUE shown above.

II. Part B-Issue Fee Transmittal should be completed and returned to the Patent and Trademark Office (PTO) with your ISSUE FEE. Even if the ISSUE FEE has already been paid by charge to deposit account, Part B Issue Fee Transmittal should be completed and returned. If you are charging the ISSUE FEE to your deposit account, section "4b" of Part B-Issue Fee Transmittal should be completed and an extra copy of the form should be submitted.

III. All communications regarding this application must give application number and batch number. Please direct all communications prior to issuance to Box ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PATENT AND TRADEMARK OFFICE COPY



**UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office**

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/136,901	08/19/98	DEMOJUNE H	73310-68000

MM11/0329

HARRY J WATSON
LOCKE PURNELL RAIN HARRELL
2200 ROSS AVE
SUITE 2200
DALLAS TX 75201

EXAMINER
FISHER, J

ART UNIT	PAPER NUMBER
2854	5

DATE MAILED: 03/29/99

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Notice of Allowability

Application No.
09/136,901

Applicant(s)
Howard W. DeMoore, et al.

Examiner
J R Fisher

Group Art Unit
2854



All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance and Issue Fee Due or other appropriate communication will be mailed in due course.

☒ This communication is responsive to the preliminary amendment filed August 19, 1998

☒ The allowed claim(s) is/are 1-31

☐ The drawings filed on _____ are acceptable.

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

A SHORTENED STATUTORY PERIOD FOR RESPONSE to comply with the requirements noted below is set to EXPIRE THREE MONTHS FROM THE "DATE MAILED" of this Office action. Failure to timely comply will result in ABANDONMENT of this application. Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

☐ Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL APPLICATION, PTO-152, which discloses that the oath or declaration is deficient. A SUBSTITUTE OATH OR DECLARATION IS REQUIRED.

☒ Applicant MUST submit NEW FORMAL DRAWINGS

☐ because the originally filed drawings were declared by applicant to be informal.

☒ including changes required by the Notice of Draftsperson's Patent Drawing Review, PTO-948, attached hereto or to Paper No. _____

☐ including changes required by the proposed drawing correction filed on _____, which has been approved by the examiner.

☐ including changes required by the attached Examiner's Amendment/Comment.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the reverse side of the drawings. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

☐ Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Any response to this letter should include, in the upper right hand corner, the APPLICATION NUMBER (SERIES CODE/SERIAL NUMBER). If applicant has received a Notice of Allowance and Issue Fee Due, the ISSUE BATCH NUMBER and DATE of the NOTICE OF ALLOWANCE should also be included.

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☒ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

☐ Interview Summary, PTO-413

☒ Examiner's Amendment/Comment

☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

☒ Examiner's Statement of Reasons for Allowance

Art Unit: 2854

ATTACHMENT TO PTO-37

An Examiner's Amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 C.F.R. § 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the Issue Fee.

With respect to applicants' preliminary amendment, it is noted that claims 1-31 were originally presented. Accordingly, the preliminary amendment has been interpreted as directing the cancellation of original claims 1-31 and adding the new claims submitted as "claims 1-26."

✓ **New claims 1-26 have been renumbered as claims 32-57, respectively, so as to conform with consecutive numbering.**

✓ In claim 40 (renumbered), line 3, "rolls" has been changed to:

--- rollers ---

✓ In claim 50 (renumbered), line 2, "the" has been canceled

The above amendments have been made by examiner's amendment as involving obvious informalities (MPEP 1302.04) directed to clarifying claim language and antecedent basis.

Art Unit: 2854

The following is an Examiner's Statement of Reasons for Allowance:

The allowance of the claims over the prior art of record is predicated on the claimed combination taken as a whole. It is the specifics of each of the claimed recitations taken as a complete and cooperating combination that is considered to define over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the Issue Fee and, to avoid processing delays, should preferably **accompany** the Issue Fee. Such submissions should be clearly labeled

"Comments on Statement of Reasons for Allowance."


J. REED FISHER
PRIMARY EXAMINER
ART UNIT 2854

March 25, 1999
Tel: 703.308.0525
Fax (Group 2800): 703.308.7722
Office hours: Mon-Thurs 7:30AM-6:00PM

Notice of References Cited				Application No. 09/136,901		Applicant(s) Howard W. DeMoore, et al.	
				Examiner J R Fisher		Group Art Unit 2854	
				Page 1 of 1			
U.S. PATENT DOCUMENTS							
*	DOCUMENT NO.	DATE	NAME			CLASS	SUBCLASS
X	A	5,115,741	Rodi			101	416.1X
X	B	4,889,051	Sarda			101	77
X	C	3,360,393	Rhorer			101	348X
X	D	2,531,036	Goettsch			101	348X
X	E	4,685,414	DiRico			101	352
X	F	4,841,903	Bird			101	201X
X	G	5,280,750	Yoshida et al			101	363
X	H	5,178,678	Koehler, et al.			118	46
I							
J							
K							
L							
M							
FOREIGN PATENT DOCUMENTS							
*	DOCUMENT NO	DATE	COUNTRY	NAME		CLASS	SUBCLASS
N							
O							
P							
Q							
R							
S							
T							
NON-PATENT DOCUMENTS							
*	DOCUMENT (Including Author, Title, Source, and Pertinent Pages)						DATE
U							
V							
W							
X							

* A copy of this reference is not being furnished with the Office action.
(See Manual of Patent Examining Procedure, Section 707.05(a).)

NOTICE OF DRAFTPERSON'S
PATENT DRAWING REVIEWThe drawing filed (insert date) 8/19/98 are:A ✓ not objected to by the Draftperson under 37 CFR 1.84 or 1.152B ✓ objected to by the Draftperson under 37 CFR 1.84 or 1.152 as indicated below. The Examiner will require submission of new, corrected drawings where necessary. Corrected drawings must be submitted according to the instructions on the back of this notice.1. DRAWINGS. 37 CFR 1.84(a). Acceptable categories of drawings:
Black ink. Color. Color drawing are not acceptable until petition is granted. Fig.(s) Pencil and non black ink is not permitted. Fig(s)

2. PHOTOGRAPHS. 37 CFR 1.84(h)

 Photographs are not acceptable until petition is granted. 3 full-tone sets are required. Fig(s) Photographs not properly mounted (must bryistol board or photographic double weight paper) Fig(s) Poor quality (half-tone) Fig(s)

3. TYPE OF PAPER. 37 CFR 1.84(c)

 Paper not flexible, strong, white and durable Fig (s) Erasures, alterations, overwritings, interlineations, folds, copy machine marks not acceptable. (too thin) Mylar, vellum paper is not acceptable (too thin). Fig(s)

4. SIZE OF PAPER. 37 CFR 1.84(f). Acceptable sizes:

 21.0 cm by 29.7 cm (DIN size A4) 21.6 cm by 27.9 cm (8 1/2 x 11 inches) All drawings sheets are the same size. Sheet(s) 1-10 (unacceptable)

5. MARGINS. 37 CFR 1.84(g). Acceptable margins:

Top 2.5 cm Left 2.5 cm Right 1.5 cm Bottom 1.0 cm

SIZE: A4 Size

Top 2.5 cm Left 2.5 cm Right 1.5 cm Bottom 1.0 cm

SIZE: 8 1/2 x 11

 Margins not acceptable. Fig(s) Top (T) Left (L) Right (R) Bottom (B)

6. VIEWS. 37 CFR 1.84(h)

REMARK: Specification may require revision to correspond to drawing changes

 Views connected by projection lines or lead lines Fig (s)

Partial views. 37 CFR 1.84(h)(2)

 Brackets needed to show figure as one entity Fig(s) Views not labeled separately or properly Fig(s) Enlarged view not labeled separately or properly Fig(s)

7. SECTIONAL VIEWS. 37 CFR 1.84(h)(3)

 Hatching not indicated for sectional portions of an object Fig(s) Sectional designation should be noted with Arabic orRoman numbers. Fig(s)

8. ARRANGEMENT OF VIEWS. 37 CFR 1.84(i)

 Words do not appear on a horizontal, left-to-right fashion when page is either upright or turned, so that the top becomes the right side, except for graphs. Fig(s) Views not on the same plane on drawing sheet. Fig (s)

9. SCALE. 37 CFR 1.84(k)

 Scale not large enough to show mechanism without crowding, when drawing is reduced in size to two-thirds in reproduction Fig(s)

10. CHARACTER OF LINES, NUMBERS, & LETTERS. 37 CFR 1.84(l)

 Lines, numbers & letters not uniformly thick and well defined, clean, durable and black (poor line quality). Fig (s)

11. SHADING. 37 CFR 1.84(m)

 Solid black areas pale. Fig (s) Solid black shading not permitted. Fig(s) Shade lines, pale, rough and blurred. Fig(s)

12. NUMBERS, LETTERS, & REFERENCE CHARACTERS. 37 CFR 1.48(p)

 Numbers and reference characters not plain and legible. Fig(s) Figure legends are poor. Fig (s) Numbers and reference characters not oriented in the same direction as the view. 37 CFR 1.84(p)(3) Fig (s) English alphabet not used. 37 CFR 1.84(p)(3) Fig (s) Numbers, letters and reference characters must be at least .32 cm (1/8 inch) in height. 37 CFR 1.84(p)(3) Fig(s)

13. LEAD LINES. 37 CFR 1.84(q)

 Lead lines cross each other. Fig (s) Lead lines missing. Fig (s)

14. NUMBERING OF SHEETS OF DRAWINGS. 37 CFR 1.48(n)

 Sheets not numbered consecutively, and in Arabic numerals, beginning with number 1. Fig(s)

15. NUMBERING OF VIEWS. 37 CFR 1.84(u)

 Views not numbered consecutively, and in Arabic numerals, beginning with number 1. Fig (s)

16. CORRECTIONS. 37 CFR 1.84(w)

 Corrections not made from PTO-948 dated

17. DESIGN DRAWINGS. 37 CFR 1.152

 Surface shading shown not appropriate. Fig (s) Solid black shading not used for color contrast Fig (s)

COMMENTS

REVIEWER WISDATE 11/30/98TELEPHONE NO. 7033058404ATTACHMENT TO PAPER NO. 5

PTO COPY

THESE SEVEN

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09/136,901

73310 68699



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99 MAY -3 AM 9:15

3 #9
Request
for Consideration
of IDS

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT APPLICATION

Serial Number: 09/136,901

Filing Date: August 19, 1998

Applicant: Howard W. DeMoore, et al.

Title: RETRACTABLE PRINTING/COATING UNIT OPERABLE ON THE
PLATE AND BLANKET CYLINDERS SIMULTANEOUSLY FROM
THE DAMPENER SIDE OF THE FIRST PRINTING UNIT OR ANY
CONSECUTIVE PRINTING UNIT OR ANY ROTARY OFFSET
PRINTING PRESS

Group Art Unit: 2854

Examiner: Fisher, J.

Assistant Commissioner of Patents
Washington, D. C. 20231

I hereby certify that this correspondence is being deposited
with the United States Postal Service with sufficient postage
as first class mail in an envelope addressed to:
Assistant Commissioner of Patents,
Washington, D.C. 20231 on 4/23/99

(Date of Deposit)

Jan Brown

Sir:

REQUEST FOR CONSIDERATION OF
APPLICANT SUPPLIED INFORMATION

Applicant thanks the Examiner for the first action allowance in this application. The
Notice of Allowance was dated March 29, 1999. The Notice of Allowance did not acknowledge
Applicant's Information Disclosure Statement filed under 37 C.F.R. 1.8(a) on March 19, 1999

and received by the Patent Office by date stamp on March 22, 1999.

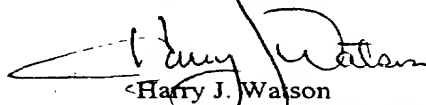
As the Information Disclosure Statement was timely submitted according to 37 C.F.R. 1.97(b) before the mailing of an Office Action on the merits, Applicant would like to have those references considered. The references were previously cited in parent application Serial Number 08/538,422 filed October 2, 1995. Our records in 08/538,422 show that the patents were submitted along with the Information Disclosure Statement and also with a Supplemental Information Disclosure Statement and are reiterated here.

In view of the circumstances, and the same Examiner in both cases, we believe these references should be considered without a surcharge. Since it is necessary to have these references appear on the patent when issues as having been considered, we make this request.

If there is any problems with this request, please call the undersigned attorney.

Please charge our Deposit Account No. 12-1781 for any additional payment that may be due or credit any overpayment.

Respectfully submitted,


Harry J. Watson
Registration No. 29,985

Date: April 23, 1999
LOCKE LIDDELL & SAPP LLP
2200 Ross Avenue, Suite 2200
Dallas, Texas 75201
214/740-8000 Telephone
214/740-8800 Facsimile

THE BOSTON

51



**UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office**

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
097136.901	06/19/98	DEMOORE	H 73310-68699

MM41/0427

HARRY J WATSON
LOCKE PURNELL RAIN HARRELL
2200 ROSS AVE
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DALLAS TX 75201

EXAMINER
FISHER, J

ART UNIT

PAPER NUMBER

2854

8

DATE MAILED:

04/27/99

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Application/Control Number: 09/136901

Page 2

Art Unit: 2854

ATTACHMENT TO PTO-90

Acknowledgment is made of the Information Disclosure Statement filed
March 22, 1999.

See attached Information Disclosure Statement, PTO-1449, Paper No.7.


J. REED FISHER
PRIMARY EXAMINER
ART UNIT 2854

April 12, 1999
Tel: 703.308.0525
Fax (TC 2800): 703.308.7722

THE UNIVERSITY OF CHICAGO

Practitioner's Docket No. 73310 68699

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: DeMoore, Howard W.; Rendleman, Ronald M.; and Bird, John W.

Application No.: 09/136,901

Group No.: 2854

Filed: 08/19/1998

Examiner: Fisher, J.

For: Retractable Printing/Coating Unit Operable on the Plate and Blanket Cylinders Simultaneously from the Dampener Side of the First Printing Unit or any Consecutive Printing Unit or Rotary Offset Printing Press

Assistant Commissioner for Patents

Washington, D.C. 20231

TRANSMITTAL OF FORMAL DRAWINGS

In response to the NOTICE OF INFORMAL DRAWINGS mailed on August 19, 1998 attached please find:

(a) the formal drawing(s) for this application.

Number of Sheets: 10 15

Each sheet of drawing indicates the identifying indicia suggested in § 1.84(c) on the reverse side of the drawing.

(b) a copy of the NOTICE OF INFORMAL DRAWINGS.

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MAY 28 1999

Publishing Division:
Corres/Allowed Files (07)

SIGNATURE OF PRACTITIONER

Harry J. Watson
Reg. No. 29,989

Locke Liddell & Sapp LLP
2200 Ross Ave, Suite 2200
Dallas, TX 75201

Tel. No.: (214) 740-8000

Customer No.: 20873

CERTIFICATE OF MAILING (37 C.F.R. 1.8(a))

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231.

Date: 5/20/99

Jean Brown
(type or print name of person mailing paper)

Jean Brown
Signature of person mailing paper

WARNING: "Facsimile transmissions are not permitted and if submitted will not be accorded a date of receipt" for "(4) Drawings submitted under §§ 1.81, 1.83 through 1.85, 1.152, 1.165, 1.174, 1.437...." 37 C.F.R. 1.6(d)(4).

(Transmittal of Formal Drawings In Response to Notice of Informal Drawings)

THE OXFORD



Applicant's Docket No. 73310-68699

#12
8 2 99
PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: DeMoore, Howard W.; Rendleman, Ronald M.; and Bird, John W.

Application No.: 09/136,901

Group No.: 2854

Filed: August 19, 1998

Examiner: Fisher, J.

For: Retractable Printing/Coating Unit Operable on the Plate and Blanket Cylinders
Simultaneously from the Dampener Side of the First Printing Unit or any
Consecutive Printing Unit or Rotary Offset Printing Press

Assistant Commissioner for Patents
Washington, D.C. 20231

COMMENT ON STATEMENT OF REASONS FOR ALLOWANCE

The Notice of Allowability correctly noted that the preliminary amendment cancelled original claims 1-31 and substituted multiple dependent claims 1-26 for the cancelled claims yet the Notice of Allowability states that claims 1-31 are allowed.

In view of the Examiner's decision to renumber the claims incorrectly designated by Applicant as 1-26 as claims 32-57 in accord with claim numbering protocol, Applicant believes the allowed claims should be claims now numbered claims 32-57 rather than claims 1-31.

Respectfully submitted,

Locke Liddell & Sapp LLP

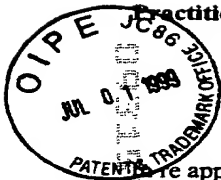
Harry J. Watson
Registration No. 29,985

Date: June 24, 1999

2200 Ross Ave., Ste. 2200
Dallas, TX 75201
214/740-8000 Telephone
214/740-8899 Facsimile

Customer No. 20873

THESE



Practitioner's Docket No. 73310 68699

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Re application of: DeMoore, Howard W.; Rendleman, Ronald M.; and Bird, John W.

Application No.: 09/136,901

Group No.: 2854

Batch No. R02

Filed: 08/19/1998

Examiner: Fisher, J.

For: Retractable Printing/Coating Unit Operable on the Plate and Blanket Cylinders Simultaneously from the Dampener Side of the First Printing Unit or any Consecutive Printing Unit or Rotary Offset Printing Press

Box Issue Fees

Assistant Commissioner for Patents
Washington, D.C. 20231

TRANSMITTAL OF PAYMENT OF ISSUE FEE (37 C.F.R. 1.311)

- Applicant hereby pays the issue fee for the attached Issue Fee Transmittal PTOL-85.
- Fee (37 C.F.R. 1.18(a) and (b)):
- Application status is small business entity—fee:
- A statement was filed on November 5, 1998.
- Payment of fee:

Regular

\$605.00

Enclosed please find check for \$ 635.00 to cover the Issue Fee and 10 advance copies.

CERTIFICATE OF MAILING/TRANSMISSION (37 C.F.R. 1.8(a))

I hereby certify that, on the date shown below, this correspondence is being:

MAILING

- ☒ deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231.

FACSIMILE

- ☐ transmitted by facsimile to the Patent and Trademark Office.

Date: 6/28/99

Jean Brown
Signature

Jean Brown

(type or print name of person certifying)

Charge Account No. 12-1781 for any fee deficiency.

A duplicate of this request is attached.

Tel No.: (214) 740-8000

Customer No.: 20873

73310:68699:DALLAS:441128.1



SIGNATURE OF PRACTITIONER

Harry J. Watson
Reg. No. 29,985
Locke Liddell & Sapp LLP
2200 Ross Ave, Suite 2200
Dallas, TX 75201

PART B—ISSUE FEE TRANSMITTAL

Complete and mail this form together with applicable fees, to:

Box ISSUE FEE
Assistant Commissioner for Patents
Washington, D.C. 20231

MAILING INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE. Blocks 1 through 4 should be completed where applicable. Further correspondence including the Issue Fee Receipt, the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Legibly mark-up with any corrections or use Block 1)

MM11/0400

HARRY J. WATSON
JULIE FURNE L. RAIN HARRELL
2200 RUS AVENUE
SUITE 2000
DALLAS TX 75201

Note: The certificate of mailing below can only be used for domestic mailings of the Issue Fee Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing.

Certificate of Mailing

I hereby certify that this Issue Fee Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Box Issue Fee address above on the date indicated below.

Jean Brown (Depositor's name)

Jean Brown (Signature)

6/28/99 (Date)

APPLICATION NO.	FILING DATE	TOTAL CLAIMS	EXAMINER AND GROUP ART UNIT	DATE MAILED
07/17/99	06/19/98	10	1111/11	06/28/99
First Named Applicant	DEMOIRE	HOWARD W.		

TITLE OF INVENTION: CYLINDRICAL PRINTING/COATING UNIT OPERABLE ON THE FLAT AND CURVED CYLINDERS SIMULTANEOUSLY FROM THE DAMPER SIDE OF THE FIRST PRINTING UNIT OR ANY CONSECUTIVE PRINTING UNIT OF ANY ROTARY OFFSET PRINTING PRESS

ATTY'S DOCKET NO.	CLASS-SUBCLASS	BATCH NO.	APPLN. TYPE	SMALL ENTITY	FEE DUE	DATE DUE
100-107-000	600	UTILITY	YES	\$605.00		

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363). Use of PTO form(s) and Customer Number are recommended, but not required.

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47) attached.

2. For printing on the patent front page, list (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1. Locke Liddell &

Sapp LLP

3.

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)
PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. Inclusion of assignee data is only appropriate when an assignment has been previously submitted to the PTO or is being submitted under separate cover. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE HOWARD W. DEMOIRE

(B) RESIDENCE (CITY & STATE OR COUNTRY) 10951 SHADY TRAIL
DALLAS, TEXAS 75230

Please check the appropriate assignee category indicated below (will not be printed on the patent)

☒ Individual ☐ corporation or other private group entity ☐ government

4a. The following fees are enclosed (make check payable to Commissioner of Patents and Trademarks):

☒ Issue Fee
☒ Advance Order - # of Copies 10

4b. The following fees or deficiency in these fees should be charged to:

DEPOSIT ACCOUNT NUMBER 12-1781
(ENCLOSE AN EXTRA COPY OF THIS FORM)

☒ Issue Fee
☒ Advance Order - # of Copies 10

The COMMISSIONER OF PATENTS AND TRADEMARKS IS requested to apply the Issue Fee to the application identified above.

(Authorized Signature)

(Date)

NOTE: The Issue Fee will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the Patent and Trademark Office.

Burden Hour Statement: This form is estimated to take 0.2 hours to complete. Time will vary depending on the needs of the individual case. Any comments on the amount of time required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, D.C. 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND FEES AND THIS FORM TO: Box Issue Fee, Assistant Commissioner for Patents, Washington D.C. 20231

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

07/02/1999 RM:GAT1 00000278 09136901

01 FC:242
02 FC:561

605.00 OP
30.00 OP

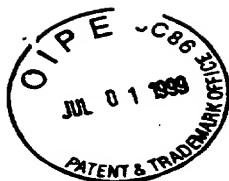
REC'D
JUL 01 1999
JUL 02 1999
Publi: Jul 01, 1999

TRANSMIT THIS FORM WITH FEE

00115796-0011501

09/136,901

73310 68699



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JLW

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT APPLICATION

Serial Number: 09/136,901

Filing Date: August 19, 1998

Applicant: DeMoore, Howard W.; Rendleman, Ronald M.; and Bird, John W.

Title: RETRACTABLE PRINTING/COATING UNIT OPERABLE ON THE PLATE AND BLANKET CYLINDERS SIMULTANEOUSLY FROM THE DAMPENER SIDE OF THE FIRST PRINTING UNIT OR ANY CONSECUTIVE PRINTING UNIT OR ROTARY OFFSET PRINTING PRESS

Group Art Unit: 2854

Examiner: Fisher, J.

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JUL 02 1999

Assistant Commissioner of Patents
Washington, D. C. 20231

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to:
Assistant Commissioner of Patents,
Washington, D.C. 20231 on 7/28/99
(Date of Deposit)

Jean Brown

Sir:

SUPPLEMENTAL INFORMATION DISCLOSURE

A copy of U.S. Patent 5,630,363 and PTO Form 1449 listing this patent are enclosed.

This patent first came to the attention of someone identified in 37 C.F.R. § 1.56(c) on or about December 1998 or January 1999.

RECEIVED


JUL 02 1999

Publishing Division
Correspondence Files (05)

Although Applicant does not believe the cited patent should be a matter of concern in the captioned patent application, in an abundance of caution Applicant brings this reference to the attention of the Patent Office.

The Commissioner is hereby authorized to charge any additional fees connected with this communication or credit any overpayment to Deposit Account No. 12-1781. A duplicate copy of this sheet is enclosed.

Respectfully submitted,



Harry J. Watson
Registration No. 29,985

LOCKE LIDDELL & SAPP LLP
2200 Ross Avenue, Suite 2200
Dallas, Texas 75201
214/740-8000 Telephone
214/740-8800 Facsimile

73310:68699:DALLAS:445659.1



US005630363A

United States Patent [19]
Davis et al.[11] **Patent Number:** **5,630,363**
[45] **Date of Patent:** **May 20, 1997****[54] COMBINED LITHOGRAPHIC/
FLEXOGRAPHIC PRINTING APPARATUS
AND PROCESS****[75] Inventors:** Bill L. Davis, Irving; Jesse S.
Williamson, Dallas, both of Tex.**[73] Assignee:** Williamson Printing Corporation,
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B41M 1/04; B41F 23/00**[52] U.S. Cl.** 101/141; 101/181; 101/183;
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416.1, 424.1, 424.2, 479, 491, DIG. 29,
DIG. 49, 483**[56] References Cited****U.S. PATENT DOCUMENTS**

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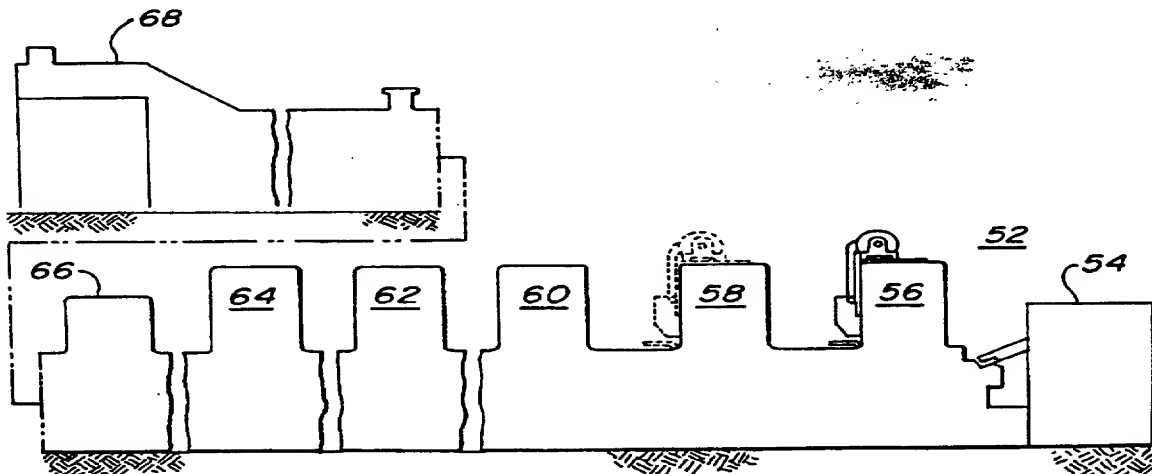
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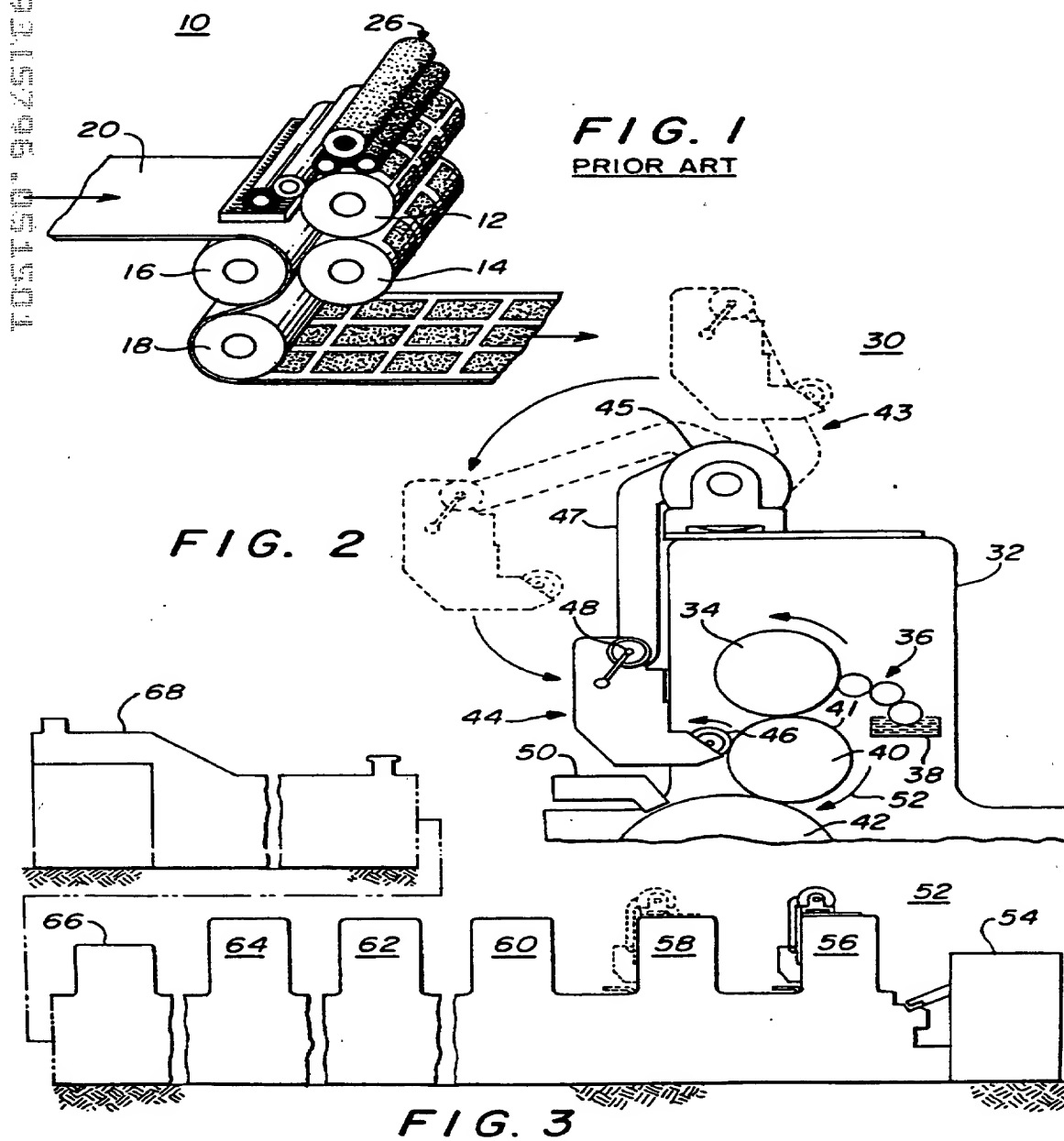
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[57]**ABSTRACT**

A combined lithographic/flexographic printing process having a plurality of successive printing stations for printing color images on a substrate in a continuous in-line process. One of the stations prints a first color image using the flexographic process and at least one of the successive printing stations prints a second color image over the first color image using an offset lithographic process in the continuous in-line process.

41 Claims, 1 Drawing Sheet



5,630,363

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**COMBINED LITHOGRAPHIC/
FLEXOGRAPHIC PRINTING APPARATUS
AND PROCESS**

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates in general to printing machines and processes and in particular to a combined lithographic/flexographic in-line printing apparatus and process.

2. Description of Related Art

As used herein, the following terms have the meanings indicated:

ANILOX ROLLER

A steel or ceramic ink metering roller. Its surface is engraved with tiny, uniform cells that carry and deposit a thin, controlled layer of ink film or coating material onto the plate. In flexo presswork, anilox rollers transfer a controlled ink film from the rubber plate (or rubber-covered roller) to the web to print the image. Anilox rollers are also used in remoistenable glue units and to create "scratch-and-sniff" perfume ads.

ANILOX SYSTEM

The inking method commonly employed on flexographic presses. An elastomer-covered fountain roller supplies a controlled ink film from the ink pan to the engraved metering roller. After ink floods the metering roller, the fountain roller is squeezed or wiped usually with a doctor blade to remove the excess ink. The ink that remains on the metering roller is then transferred to the rubber printing plate.

COATER

A device with a pan to contain the coating material, a pan roller partially immersed in the coating material contained in the pan, and a coater roller to meter off a uniform film of the coating material and apply it to the printing plate.

COATING

An unbroken, clear film applied to a substrate in layers to protect and seal it, or to make it glossy.

FLEXOGRAPHIC INK

A quick-drying, fluid ink that is highly volatile or an ink that can be water based and nonvolatile.

FLEXOGRAPHY

A method of rotary letterpress printing characterized by the use of flexible, rubber, or plastic plates with raised image areas and fluid, rapid-drying inks.

HALFTONES

Dot-pattern images that have the appearance of continuous-tone images because of the limited resolving power of the human eye. This limitation accounts for an optical illusion; small halftone dots, when viewed at the normal reading distance, cannot be resolved as individual dots but blend into a continuous tone.

LITHOGRAPHIC PLATES

A lithographic plate is precoated with a light-sensitive or otherwise imageable coating, and the separation between the image and nonimage areas is maintained chemically. The image areas must be ink receptive and refuse water and the nonimage areas must be water receptive and refuse ink. The wider the difference maintained between the ink receptivity of the image areas and the water receptivity of the nonimage areas, the better the plate will be, the easier it will run on the press, and, consequently, the better the printing. There are several types of lithographic plates. The plate is an image carrier that is said to be planographic, or flat and smooth.

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LITHOGRAPHY

A printing process in which the image carrier or plate is chemically treated so that the image areas are receptive to ink.

5 **OFFSET PRINTING**

An indirect printing method in which the inked image on a press plate is first transferred to a rubber blanket, that in turn "offsets" the inked impression to a press sheet. In offset lithography, the printing plate has been photochemically treated to produce image areas receptive to ink.

10 **SLURRY**

A water suspension of fibers or the suspension of pigment and adhesive used to coat papers. It may also include a suspended metallic material such as uniform-sized metal particles or nonuniform-sized metal particles.

15 **ULTRAVIOLET INKS**

Printing inks containing an activator that causes the polymerization of binders and solvents after exposure to a source of ultraviolet radiation.

20 Offset lithography is a process that is well known in the art and utilizes the planographic method. This means that the image and nonprinting areas are essentially on the same plane of a thin metal plate and the distinction between them is maintained chemically. There are two basic differences between offset lithography and other processes. First, it is based on the principle that grease and water do not mix. Second, the ink is offset from the first plate to a rubber blanket and then from the blanket to a substrate on which printing is to occur such as paper.

30 When the printing plate is made, the printing image is made grease receptive and water repellant and the nonprinting areas are made water receptive and ink repellant. The plate is mounted on the plate cylinder of the press which, as it rotates, comes in contact successively with rollers wet by a water or dampening solution and rollers wet by ink. The dampening solution wets the nonprinting areas of the plate and prevents the ink from wetting these areas. The ink wets the image areas which are transferred to the intermediate blanket cylinder. The inked image is transferred to the substrate as it passes between the blanket cylinder and the impression cylinder. Transferring the image from the plate to a rubber blanket before transfer to the substrate is called the offset principle.

45 One major advantage of the offset principle is that the soft rubber surface of the blanket creates a clearer impression on a wide variety of paper surfaces and other substrate materials with both rough and smooth textures with a minimum of press preparation.

Offset lithography has equipment for short, medium and long runs. Both sheetfed and web presses are used. Sheetfed lithography is used for printing advertising, books, catalogs, greeting cards, posters, labels, packaging, folding boxes, decalcomanias, coupons, trading stamps, and art reproductions. Many sheetfed presses can perfect (print both sides of the paper) in one pass through the press. Web offset is used for printing business forms, newspapers, preprinted newspaper inserts, advertising literature, catalogs, long-run books, encyclopedias, and magazines.

60 In offset lithography, the rubber blanket surface conforms to irregular printing surfaces, resulting in the need for less pressure and preparation. It has improved print quality of text and halftones on rough surfaced papers. Further, the substrate does not contact the printing plate thereby increasing plate life and reducing abrasive wear. Also, the image on the plate is right for reading rather than reverse reading. Finally, less ink is required for equal coverage, drying is speeded, and smudging and setoff are reduced. Setoff is a

condition that results when wet ink on the surface of the press sheets transfers or sticks to the backs of other sheets in the delivery pile.

Thus, in summary, conventional lithographic offset printing machines or presses comprise one or more image printing stations each having a printing roller or a plate cylinder to which is fastened a thin hydrophilic, oleophobic printing plate having image areas which are oleophilic and hydrophobic and background areas which are oleophobic and hydrophilic. The plate surface is continuously wetted with an aqueous damping solution which adheres only to the background areas and inked with oleo-resinous inks which adhere only to the image areas of the plate as wet ink. The ink is offset transferred to the rubber surface of a contacting blanket cylinder and then retransferred to the receptive surface of a copy web or a succession of copy sheets, such as paper, with an impression cylinder and the ink air dries by oxidation and curing after passing through a drying station.

It is also known to provide the printing machine with a downstream coating station having a blanket roller associated with a coating application unit for the application of an overall protective coating over the entire printed area of the copy sheets or web.

It is known to apply pattern coatings of protective composition by means of blanket rolls by cutting into the rubber surface of the blanket to create raised or relief surface areas which selectively receive the coating composition from the application roll for retransfer to selected areas of the copy sheets in form of pattern coatings. See U.S. Pat. No. 4,796,556.

Lithographic inks are formulated to print from planographic surfaces which use the principle that grease and water do not mix. Lithographic inks are generally very strong in color value to compensate for the lesser amount applied. They are among the strongest of all inks. The average amount of ink transferred to the paper is about half that of letter press because of the double split of the ink film between the plate cylinder and the blanket cylinder and the blanket cylinder and the substrate on the impression cylinder.

Problems occur in the offset lithographic process when attempting to print certain colors such as white and in particular white on other colors such as yellow because the color white will be faint and not sufficiently strong. In such cases, the sheet or paper or substrate requiring the white ink usually has to be run through the same printer several times before the white becomes sufficiently strong.

Further, such colors are not generally printable in an offset lithographic printing process. This means that the sheets or substrate must be removed and transferred to a second type of machine using the flexographic process to apply greater amounts of ink in successive printing runs to achieve the desired print quality.

A like situation occurs with the printing of slurry-type materials such as "scratch-and-sniff" materials which is a liquid vehicle with a slurry containing an encapsulated essence. Such liquid vehicles, because of the nature of the slurry, must be printed with a flexographic process because the anilox roller can supply greater amounts of ink to the flexo plate on the plate cylinder.

Again, when a liquid vehicle with a slurry having suspended material therein such as metallic particles is to be printed, an offset lithographic process cannot be used without the mixing of the aqueous solution with metallic inks which cause a dulling of the image. Further, the above-mentioned double split of the ink film adds to the dulling of the image. Therefore, to achieve desired results, the printing must take place with a flexographic printing machine.

Thus, liquid opaque coatings or inks such as white colored ink, scratch-and-sniff vehicles, and slurries with metal particles do not achieve desired results when printed in an offset lithographic process and must be transferred from the offset lithographic in-line machines to a separate machine for printing in a separate run.

Such requirements not only hinder the speed of the printing process but also require additional time and thus increase the cost of the printing.

It would be advantageous to have a continuous in-line process in which not only offset lithographic printing could take place but in which, in the same in-line process, liquid printing vehicles including opaque coatings, such as white ink, and slurries containing encapsulated essences or metallic particles could also be printed and dried not only before the printing of the offset lithographic inks but also in which, after the liquid opaque coatings have been applied, an overcoating could be applied to the printed liquid vehicle image using the lithographic process in the continuous in-line process.

SUMMARY OF THE INVENTION

The present invention provides for a continuous in-line printing process having a plurality of successive printing stations for printing color images on a substrate. At least one of the stations prints a liquid vehicle image on a substrate with an opaque coating using the flexographic process and at least one of the successive printing stations printing a second color image over the liquid vehicle image on the printed substrate using the lithographic process in the continuous in-line process.

In the novel inventive system, a single in-line continuous printing process is used. One of the stations may print a liquid vehicle image on a substrate that contains a slurry with an encapsulated essence therein utilizing the flexographic process. Another one of the stations may apply an overcoating over the liquid vehicle image on the printed substrate using a lithographic process. Still another of the stations may print an aqueous-based vehicle image including a suspended metallic material therein using the flexographic process to form a metallic coating and thereafter at least one of the successive printing stations prints a color image over the aqueous-based vehicle image using the lithographic offset process in the continuous in-line process.

Whenever a station is used for flexographic printing, a flexographic plate image is placed on the blanket cylinder for receiving the liquid vehicle and transferring the liquid vehicle to the impression cylinder for printing. An anilox roller is associated with the flexographic plate for supplying the liquid vehicle which may be an aqueous-based vehicle.

In addition, in such case, a high-velocity air dryer is associated with the impression cylinder of one or more of the printing stations where the printing on the substrate is occurring to assist in drying the ink or liquid vehicle printed on the substrate while it is on or near the impression cylinder, before the substrate arrives at the next successive station for additional printing, or before printing occurs at the next successive station.

Thus, if a liquid vehicle such as white ink is to be printed, it is printed with a flexographic process which deposits a greater amount of ink on the substrate, the ink is dried with a high-velocity air dryer while the substrate is on or near the impression cylinder and prior to the substrate being received by the next successive station. If desired, at the next successive station the printing of the white liquid vehicle may again take place thus ensuring the desired intensity of

whiteness on the substrate. Subsequently, at the next succeeding station a printing may take place on top of the white printing and such printing may continue at the remaining successive stations.

Thus, it is an object of the present invention to provide a plurality of successive printing stations for printing color images on a substrate in a continuous in-line process and in which some of the stations print using the flexographic process and other of the stations print utilizing the offset lithographic process.

It is also an object of the present invention to print an aqueous-based vehicle image including a suspended metallic material therein using the flexographic process at one printing station and at least one successive printing station printing a color image over the aqueous-based vehicle image using a lithographic process in a continuous in-line process or placing an overcoating over the aqueous-based vehicle image using the flexographic process and then printing at successive stations using the lithographic process.

It is yet another object of the present invention to provide a continuous in-line printing process in which one of the stations prints a liquid vehicle image on the substrate with a slurry containing an encapsulated essence using the flexographic process and at least one of the successive printing stations applies an overcoating over the liquid vehicle image on the printed substrate using the offset lithographic process in a continuous in-line process.

BRIEF DESCRIPTION OF THE DRAWINGS

These and other features of the present invention will be more fully disclosed when taken in conjunction with the following DETAILED DESCRIPTION OF THE PRESENT INVENTION in which like numerals represent like elements and in which:

FIG. 1 is a schematic view of a prior art offset lithography printing station;

FIG. 2 is a generalized depiction of a printing station that may be used either as an offset lithographic station or a flexographic printing station and illustrates how the station may be converted from an offset lithographic station to a flexographic station; and

FIG. 3 illustrates the continuous in-line process of the present invention comprising a plurality of printing stations, each of which can be converted from an offset lithographic printing station to a flexographic printing station as well as a final coating station.

DETAILED DESCRIPTION OF THE PRESENT INVENTION

FIG. 1 is a schematic representation of a well-known offset lithography printing station 10 having a plate cylinder 12, a blanket cylinder 14, and an impression cylinder 16. The printing medium or substrate, such as paper 20 either in sheet form or web, is fed over the impression cylinder 16 in printing contact with the blanket cylinder 14 to receive the image and then passes over the paper transfer cylinder 18 with the image printed thereon. An inking system 26, well known in the art, transfers the ink from the ink supply to the plate cylinder 12. This is a typical offset lithography printing station.

As disclosed in U.S. Pat. No. 4,796,556, offset lithographic printing machines generally have a plurality of in-line liquid application stations at least one of which is an ink image printing station for printing lithographic ink images on to suitable receptive copy sheets. The final

downstream liquid application station is a coating application station for printing a protective and/or aesthetic coating over selected portions of or over the entire ink-image printed surface of the copy sheets and can also be used to print metallic coatings or slurry. As stated in U.S. Pat. No. 4,796,556, two liquid application stations are shown, the latter including a coating apparatus and the first station being a conventional offset image printing station. The coating application printing station is one that can be modified to convert it either permanently or intermittently to a coating station from an offset lithographic station.

Such a station is illustrated in FIG. 2 herein. The station 30 comprises a housing 32 which includes therein a plate cylinder 34 that is fed with an ink system of rollers 36 that take ink from an ink supply 38 and transfer it to the plate cylinder 34. A blanket cylinder 40 is in ink transfer relationship with the plate cylinder 34 and the impression cylinder 42 where the image is transferred to a substrate passing between blanket cylinder 40 and impression cylinder 42 as blanket cylinder 40 rotates in the direction of arrow 52. This is a conventional offset lithographic printing station. When it is desired to convert that station into a coater station, the coater apparatus 43 has a coater head 44 including a supply of liquid coating and an anilox roller 46 that can be moved such that it can be in contact with either the blanket cylinder 40 for direct printing or the plate cylinder 34 for offset printing. In this case, the ink rollers 36 for the lithographic system are removed from engagement with the plate cylinder 34 in a well-known manner. The coater unit 43 includes a motor device 45, an arm 47, and a pivotal connection 48 that connects the coater head 44 with the remainder of the assembly.

As stated previously, the offset lithographic machine of FIG. 2 is converted as shown therein to a coater that is used only in the last stage of an in-line printing process. It has not been able to be used in stages other than the last printing station because the ink that is placed on the blanket cylinder by means of an anilox roller is still wet when it arrives at the subsequent stations, thus causing smearing of the printed material and causing a general impossibility of printing other information thereon. However, applicant has modified the station shown in FIG. 2 by the addition of a high-velocity air dryer 50 that is associated with the impression cylinder 42 directly after the ink is transferred from the blanket cylinder to the substrate on the impression cylinder. Thus by using flexographic inks, or aqueous coatings which are naturally quick-drying inks, and the high-velocity air dryer 50 located at the point where the ink is applied to the substrate on the impression cylinder, the ink is sufficiently dried when it passes to the next station that further printing can take place on the printed substrate.

Thus, as shown in FIG. 3, a conventional in-line offset lithographic printing machine 52 is shown having an apparatus to feed paper into the said machine, referred to as a feeder 54, printing stations 56, 58, 60, 62, and 64 and a coating station 66. A delivery station 68 receives the printed material or substrates. Thus there are a plurality of successive printing stations 56, 58, 60, 62, and 64 for printing color images on the substrate in a continuous in-line process. Any one of the printing stations 56-64 can be modified as generally shown therein and as illustrated in FIG. 2 to print a first color image using the flexographic process. The succeeding printing stations can then print a second color image over the first color image using the lithographic process in the continuous in-line process. As illustrated in FIG. 2, the flexographic process printing station includes the blanket cylinder 40 and the impression cylinder 42. A

flexographic plate 41 on the blanket cylinder 40 has an image thereon for receiving the first color from the anilox roller 46 and transferring that first color image to the impression cylinder 42 for printing on the substrate. The high-velocity air dryer 50 thus dries the flexographic ink on the substrate and passes the substrate to the subsequent printing station. Thus in FIG. 3, station 56 may be modified as generally shown therein and as illustrated in FIG. 2 and a flexographic ink can be printed thereon at station 56, dried by the high-velocity air dryer 50, and coupled to subsequent in-line stations 58-64 for further printing a second or more color images over the first color image using the offset lithographic process in a continuous in-line process. The flexographic printing station shown in FIG. 2 may print a liquid vehicle image on the substrate with a slurry containing an encapsulated essence. At least one of the successive printing stations 58-64 an overcoating may be applied over the liquid vehicle image on the printed substrate using the flexographic process in the continuous in-line process. The overcoating may be an aqueous overcoating, or an ultraviolet overcoating. In addition, the substrate may be a sheet or a web 20 as illustrated in FIG. 1 or it may be single sheet fed in the continuous in-line process from the stack sheets shown at 54 in FIG. 3.

Further, the modified flexographic printing station 30 shown in FIG. 2, as stated previously, may be any one of the stations 56-64 in FIG. 3, and as illustrated by stations 56 and 58, and may print an aqueous-based vehicle image including a suspended metallic material therein using the flexographic process to form a metallic coating. Again, after it is dried by the high-velocity air dryer 50, it may be passed to one of the successive printing stations for printing a color image over the aqueous-based vehicle image using the offset lithographic process in the continuous in-line process. The suspended material may include uniform-sized metal particles to form the metallic coating or it may include nonuniform or multiple-sized metal particles to form the metallic coating.

The present invention is especially useful when a liquid opaque coating must be printed such as a white color ink. In that case, it may be desirable to have both stations 56 and 58 modified as shown in FIG. 3 and as illustrated in detail in FIG. 2. In such case, the anilox roller 46 at each station delivers the white ink in the same pattern to the flexographic plate 41 on the blanket cylinder 40 for transfer to the substrate on the impression cylinder 42. As the substrate passes the high-velocity drying station 50, the ink is dried and the second station may again print the same white pattern on the substrate to increase the quality of the white ink appearance after it is applied to the substrate.

Thus, the station or stations that are converted to flexographic printing stations may have an ink-providing means 46 at the printing station for applying a flexographic ink to the blanket cylinder to form the image. A substrate receives the flexographic ink image transfer from the blanket cylinder and at least one subsequent printing station in the in-line process receives the image-printed substrate and prints an additional coated ink image on the substrate on top of the flexographic ink image using offset lithography. The additional colored ink images that can be printed on top of the flexographic ink images can be conventional lithographic inks or waterless inks.

Further, the colored ink images may be printed with halftone screening processes. The flexographic ink image and the colored ink images may also be printed in solids and/or halftone printing plates in sequence and in registry in successive printing stations to produce a multicolored image on the substrate. Further, the printing apparatus may include a sheetfed press or a web press.

In the present invention, at least one of the flexographic printing stations prints an image with liquid vehicle slurry containing an encapsulated essence. In another embodiment, at least one of the printing stations prints an image with a water-based liquid vehicle containing suspended particles that are either uniform or nonuniform in size. The suspended particles may be metallic particles up to substantially 16 microns in diameter.

The present invention may also use the metallic color printing process as disclosed in commonly assigned U.S. Pat. No. 5,370,976 incorporated herein by reference in its entirety.

In one aspect, the novelty of the present invention is to create a flexographic printing station that can be used at one of a plurality of printing stations in a continuous in-line process and in which, at a subsequent printing station, a lithographic process may be used to print over the liquid vehicle printed by the flexographic station.

Thus, there has been disclosed an apparatus for a combined lithographic/flexographic printing process that includes a plurality of successive printing stations for printing color images on a substrate in a continuous in-line process and wherein one of the stations prints a first color image using the flexographic process and at least one of the successive printing stations prints a second color image over the first color image using the lithographic process in the continuous in-line process.

While the invention has been described in connection with a preferred embodiment, it is not intended to limit the scope of the invention to the particular form set forth, but, on the contrary, it is intended to cover such alternatives, modifications, and equivalents as may be included within the spirit and scope of the invention as defined by the appended claims.

We claim:

1. Apparatus for a combined lithographic/flexographic printing process comprising:

a substrate;

a plurality of successive printing stations for printing color images on the substrate in a continuous in-line process;

one of said stations comprising a flexographic printing station for printing a liquid vehicle image on said substrate with a slurry containing an encapsulated essence using the flexographic process;

at least one of said successive printing stations being a lithographic printing station; and

an overcoating applied over the liquid vehicle image on the printed substrate at at least one of said successive lithographic printing stations using the lithographic process in said continuous in-line process.

2. Apparatus as in claim 1 wherein said overcoating is an aqueous overcoating.

3. Apparatus as in claim 1 wherein said overcoating is an ultraviolet ink overcoating.

4. Apparatus as in claim 1 wherein:

said substrate is a paper sheet; and

said apparatus includes a sheet feeder.

5. Apparatus as in claim 1 wherein:

said substrate is a web; and

said apparatus includes a web feeder.

6. Apparatus for a combined lithographic/flexographic printing process comprising:

a plurality of successive printing stations for printing color images on a substrate in a continuous in-line process;

one of said stations comprising a flexographic printing station printing an aqueous-based vehicle image using the flexographic process to form a metallic coating; a suspended metallic material being included in said aqueous-based vehicle image; and at least one of the successive printing stations comprising an offset lithographic printing station printing a color image over the aqueous-based vehicle image using the offset lithographic process in said continuous in-line process.

7. Apparatus as in claim 6 wherein said suspended material includes uniform-sized metal particles to form said metallic coating.

8. Apparatus as in claim 6 wherein said suspended material includes nonuniform-sized metal particles to form said metallic coating.

9. Apparatus as in claim 6 further including: said flexographic printing station including a plate cylinder having a flexographic plate thereon, a blanket cylinder, and an impression cylinder;

- a flexographic plate image transferred from said plate cylinder to said blanket cylinder, said image being formed of said metallic coating, said blanket cylinder transferring said metallic coating to said impression cylinder for printing said flexographic plate image on said substrate; and
- an anilox roller associated with said flexographic plate for supplying said aqueous-based vehicle containing said suspended metallic material to said flexographic plate.

10. Apparatus for creating a combined lithographic/flexographic printing process comprising:

- a plurality of successive printing stations for printing color images on a substrate in a continuous in-line process;
- one of said stations comprising a flexographic printing station for printing a first color image using the flexographic process; and
- at least one of the successive printing stations comprising an offset lithographic printing station for printing a second color image over the first color image using the offset lithographic process in said continuous in-line process.

11. Apparatus as in claim 10 further including:

- said flexographic printing station including a plate cylinder, a blanket cylinder, and an impression cylinder;
- a flexographic plate on said plate cylinder;
- an anilox roller associated with said flexographic plate for supplying a first color to said flexographic plate to form said first color image; and
- said blanket cylinder receiving said first color image from said plate cylinder and transferring said first color image to said impression cylinder for printing on said substrate.

12. Apparatus for creating a combined lithographic/flexographic printing process comprising:

- a substrate;
- a plurality of successive printing stations for printing color images on the substrate in a continuous in-line process;
- at least two successive ones of said printing stations being flexography stations and comprising:
 - (1) a supply of liquid coating;
 - (2) a plate cylinder associated with a blanket cylinder, said plate cylinder having a flexographic plate thereon;

- (3) an anilox roller associated with said liquid supply coating and said plate cylinder for delivering said liquid coating to said flexographic plate to form an image for transfer to said blanket cylinder;
- (4) an impression cylinder for receiving said liquid coating image transferred from said blanket cylinder and printing said image on said substrate, said at least two flexography stations printing the same liquid coating image in sequence and in superimposed relationship; and
- at least one offset lithographic printing station for receiving said substrate and printing over said liquid coating image.

13. Apparatus as in claim 12 wherein said liquid coating image printed on said substrate is a white color ink.

14. Apparatus as in claim 12 further including an air dryer associated with each of said impression cylinders on said flexography stations, said air dryer having sufficient air velocity for drying said liquid coating before the substrate is transferred to the successive printing station in said continuous in-line process.

15. Apparatus for a combined lithographic/flexographic printing process comprising:

- a plurality of successive printing stations for printing color images on a substrate in a continuous in-line process, said printing stations including both lithographic and flexographic printing stations;
- a blanket cylinder at at least a first one of said flexographic printing stations;
- flexographic ink-providing means at said at least first one of said flexographic printing stations for applying a flexographic ink to said blanket cylinder to form an image;
- a substrate for receiving said flexographic ink image transferred from said blanket cylinder; and
- at least one subsequent lithographic printing station in said in-line process for receiving said image printed substrate and printing an additional colored ink image on said substrate on top of said flexographic ink image using offset lithography.

16. Apparatus as in claim 15 further comprising:

- a plate cylinder at said at least first one of said flexographic stations;
- a flexographic plate on said plate cylinder for receiving and transferring said flexographic ink to said blanket cylinder; and
- said flexographic ink-providing means including a flexographic ink supply and an anilox roller associated with said flexographic ink supply for transferring said flexographic ink to said flexographic plate.

17. Apparatus for a combined lithographic/flexographic printing process for printing a multicolored image comprising:

- a plurality of successive printing stations for printing color on a substrate in a continuous in-line process, said printing stations including both lithographic and flexographic printing stations;
- at least one of said flexographic printing stations having:
 - (1) a plate cylinder and a blanket cylinder, said plate cylinder including a flexographic plate having an image thereon for transferring a flexographic color ink image to said blanket cylinder;
 - (2) an etched anilox roller for applying a flexographic color ink to said flexographic plate on said plate cylinder;

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(3) an impression cylinder in ink-transfer relationship with said blanket cylinder for transferring said flexographic color ink image from said blanket cylinder to said substrate; and

at least one of said succeeding printing stations being a lithographic printing station using offset lithography for printing additional colored ink images on top of said flexographic ink image.

18. Apparatus as in claim 17 wherein said additional colored ink images are formed with lithographic inks.

19. Apparatus as in claim 17 wherein said colored ink images are formed with waterless inks.

20. Apparatus as in claim 17 further including an air dryer adjacent to said impression cylinder for drying the flexographic ink image transferred to said substrate before said additional colored ink images are printed thereon.

21. Apparatus as in claim 17 further including halftone printing plates for printing said colored ink images.

22. Apparatus as in claim 17 wherein said flexographic ink image and said colored ink images are printed as solid colors and/or with halftone printing plates in sequence and in registry in said successive printing stations to produce said multicolored image on said substrate.

23. Apparatus as in claim 17 wherein said printing apparatus includes a sheet-fed press.

24. Apparatus as in claim 17 wherein at least one of said flexographic printing stations prints said flexographic ink image with liquid vehicle slurry containing an encapsulated essence.

25. Apparatus as in claim 17 wherein at least one of said printing stations prints said flexographic ink image with a water-based liquid vehicle containing suspended particles.

26. Apparatus as in claim 25 wherein said suspended particles are uniform in size.

27. Apparatus as in claim 25 wherein said suspended particles are nonuniform in size.

28. Apparatus as in claim 25 wherein said suspended particles are metallic particles.

29. A method of combining lithography and flexographic printing in a continuous in-line process comprising the steps of:

providing a plurality of successive lithographic/flexographic printing stations for printing colored ink images on a substrate;

printing a flexographic ink image on said substrate at at least one of said flexographic stations;

transferring said printed substrate to at least one subsequent printing station in said continuous in-line process; and

printing colored ink images on top of said flexographic ink image at at least one of said subsequent lithographic printing stations with an offset lithographic process.

30. A method as in claim 29 further comprising the step of drying said flexographic ink image on said substrate with an air dryer prior to printing said colored ink images thereon.

31. A method as in claim 29 further including the step of printing a coating on top of said colored ink images at one of said plurality of subsequent printing stations.

32. A method as in claim 29 wherein said colored inks forming said colored ink images are waterless.

33. A method as in claim 29 wherein said colored inks forming said colored ink images are in a solvent-based liquid vehicle.

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34. A method as in claim 29 further including the steps of: printing a slurry on said substrate at any of said printing stations in said continuous in-line process;

using an encapsulated essence in said slurry; and

printing an overcoating over said slurry at a subsequent printing station in said in-line process to protect said essence.

35. A method as in claim 34 further including the step of printing an aqueous-based coating over said slurry.

36. A method as in claim 34 further including the step of printing an ultraviolet coating over said slurry.

37. A method of combining offset lithography and flexographic printing in a continuous in-line process comprising the steps of:

providing a substrate;

applying a flexographic ink to a blanket cylinder in a pattern with a coating head at a first flexographic printing station;

transferring said pattern of flexographic ink from said blanket cylinder to the substrate; and

printing a waterless ink pattern over said flexographic ink pattern on said substrate at at least one subsequent offset lithographic printing station in said continuous in-line process.

38. A method of combining lithography and flexographic printing in a continuous in-line process comprising the steps of:

printing an aqueous-based vehicle image having suspended particles therein on a substrate at a first flexographic printing station;

transferring said image printed substrate to at least one additional printing station in said continuous in-line process; and

printing additional colored ink images on said printed substrate over said aqueous-based vehicle image in an offset lithographic process at said at least one additional printing station in said in-line process.

39. A method of combining lithography and flexographic printing in a continuous in-line process comprising the steps of:

(1) providing a plurality of successive printing stations for printing liquid vehicle images on a substrate in said in-line continuous process;

(2) utilizing an anilox roller to transfer a liquid ink as said liquid vehicle to a flexographic plate image at at least one of said printing stations;

(3) printing said liquid ink from said flexographic plate image to a substrate;

(4) transferring said printed substrate with said liquid ink image to a subsequent printing station in said in-line printing process;

(5) repeating steps (2)-(4) at subsequent printing stations in said in-line process to achieve a desired opacity ink image on said substrate; and

(6) printing an ink pattern over said flexographic ink image using an offset lithographic process.

40. A method as in claim 39 further including the step of additionally printing colored ink images over said liquid ink image on said substrate at subsequent ones of said printing stations in said in-line process.

41. A method as in claim 40 wherein said liquid ink is an opaque white color.

* * * * *

THE "GREAT"



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09/136901			
APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/136.901	08/19/98	DEMOORE	H 73310-68699

HARRY J WATSON
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DALLAS TX 75201

MM41/0825

EXAMINER
FISHER, J

ART UNIT	PAPER NUMBER
2854	13

DATE MAILED: 08/25/99

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Attachments :

- 1) Letter re. IDS filed 7/1/99.
- 2) Corrected Notice of Allowability.

Ren Yan

REN YAN
PRIMARY EXAMINER



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
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Washington, D.C. 20231

09/136901

APPLICATION NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO.
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09/136,901 08/19/98 DEMOORE

H 73310-68699

EXAMINER

MM21/0825

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ARTWORK SHEET, PAPER NUMBER

DATE MAILED: 08/25/99

08/25/99

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

NOTICE OF ALLOWABILITY

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance and Issue Fee Due or other appropriate communication will be mailed in due course.

☒ This communication is responsive to the IDS of 7/1/99 & the claim numbering letter of 7/1/99.
☒ The allowed claim(s) is/are 32-57

- ☐ The drawings filed on _____ are acceptable.
- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- ☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
- ☐ received.
- ☐ received in Application No. (Series Code/Serial Number) _____
- ☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

- ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

A SHORTENED STATUTORY PERIOD FOR RESPONSE to comply with the requirements noted below is set to EXPIRE THREE MONTHS FROM THE "DATE MAILED" of this Office action. Failure to timely comply will result in ABANDONMENT of this application. Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

- ☐ Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL APPLICATION, PTO-152, which discloses that the oath or declaration is deficient. A SUBSTITUTE OATH OR DECLARATION IS REQUIRED.
- ☐ Applicant MUST submit NEW FORMAL DRAWINGS
- ☐ because the originally filed drawings were declared by applicant to be informal.
- ☐ including changes required by the Notice of Draftperson's Patent Drawing Review, PTO-948, attached hereto or to Paper No. _____
- ☐ including changes required by the proposed drawing correction filed on _____, which has been approved by the examiner.
- ☐ including changes required by the attached Examiner's Amendment/Comment.

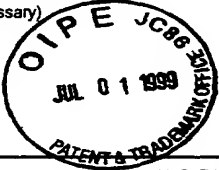
Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the reverse side of the drawings. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftperson.

- ☐ Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Any response to this letter should include, in the upper right hand corner, the APPLICATION NUMBER (SERIES CODE/SERIAL NUMBER). If applicant has received a Notice of Allowance and Issue Fee Due, the ISSUE BATCH NUMBER and DATE of the NOTICE OF ALLOWANCE should also be included.

Attachment(s)

- ☐ Notice of References Cited, PTO-892
- ☒ Letter regarding the Information Disclosure Statement(s), PTO-1449, Paper No(s). 11 filed 7/1/99.
- ☐ Notice of Draftperson's Patent Drawing Review, PTO-948
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Interview Summary, PTO-413
- ☐ Examiner's Amendment/Comment
- ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
- ☐ Examiner's Statement of Reasons for Allowance

FORM PTO-1449 (REV. 7.80)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY. DOCKET NO. 73310-68699		SERIAL NO. 09/136,901	
LIST OF PRIOR ART CITED BY APPLICANT (Use several sheets if necessary)							
				APPLICANT DeMoore, Howard W. et al.			
				FILING DATE August 19, 1998		GROUP 2854	
U. S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE (if appropriate)
	AA	5,630,363	05/20/97	Davis et al.			August 14, 1995
	AB						
	AC						
	AD						
	AE						
	AF						
	AG						
	AH						
	AI						
	AJ						
FOREIGN PATENT DOCUMENTS							
		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO
	AL						
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	AN						
	AO						
	AP						
OTHER PRIOR ART (Including Author, Title, Date, Pertinent Pages, Etc.)							
	AR						
	AS						
EXAMINER				DATE CONSIDERED			
<small>*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.</small>							

[illegible]



US005960713A

United States Patent [19]
DeMoore et al.**[11] Patent Number: 5,960,713**
[45] Date of Patent: Oct. 5, 1999

[54] **RETRACTABLE PRINTING-COATING UNIT OPERABLE ON THE PLATE AND BLANKET CYLINDERS SIMULTANEOUSLY FROM THE DAMPENER SIDE OF THE FIRST PRINTING UNIT OR ANY CONSECUTIVE PRINTING UNIT OR ANY ROTARY OFFSET PRINTING PRESS**

[75] **Inventors:** Howard W. DeMoore, 10954 Shady Trail, Dallas, Tex. 75220; Ronald M. Rendlemann, Dallas, Tex.; John W. Bird, Carrollton, Tex.

[73] **Assignee:** Howard W. DeMoore, Dallas, Tex.

[21] **Appl. No.:** 09/136,901

[22] **Filed:** Aug. 19, 1998

Related U.S. Application Data

[63] Continuation-in-part of application No. 08/538,422, Oct. 2, 1995, abandoned, which is a continuation-in-part of application No. 08/435,798, May 4, 1995.

[51] **Int. Cl.⁶** B41F 7/06; B41F 5/02; B41F 5/22

[52] **U.S. Cl.** 101/137; 101/177

[58] **Field of Search** 101/136, 137, 101/142, 143, 144, 145, 177, 183, 207-210, 216, 217, 218, 349.1, 350.1, 350.2, 351.3, 352.01, 352.02, 352.04, 352.05, 363

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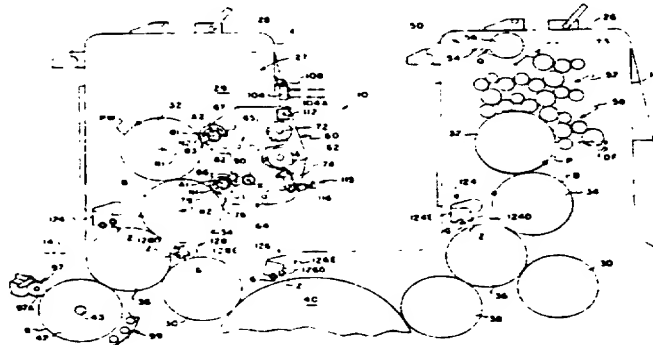
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(List continued on next page.)

Primary Examiner—J. Reed Fisher
Attorney, Agent, or Firm—Locke Liddell & Sapp LLP

[57] ABSTRACT

A retractable in-line inking/coating apparatus can apply either spot or overall inking/coating material to a plate and/or a blanket on the first printing unit or on any consecutive printing unit of any rotary offset printing press. The inking/coating apparatus is pivotally mounted within the conventional dampener space of any lithographic printing unit. The aqueous component of the flexographic printing ink or aqueous coating material is evaporated and dried by high velocity, hot air dryers and high performance heat and moisture extractors so that the aqueous or flexographic ink or coating material on a freshly printed or coated sheet is dry and can be dry-trapped on the next printing unit. The inking/coating apparatus includes dual cradles that support first and second applicator rollers so that the inking/coating apparatus can apply a double bump of aqueous/flexographic or UV-curable printing ink or coating material to a plate on the plate cylinder, while simultaneously applying aqueous, flexographic or UV-curable printing ink or coating material to a plate or a blanket on the blanket cylinder, and thereafter onto a sheet as the sheet is transferred through the nip between the blanket cylinder and the impression cylinder. A triple bump is printed or coated on the last printing unit with the aid of an impression cylinder inking/coating unit.

26 Claims, 15 Drawing Sheets

5,960,713

Page 2

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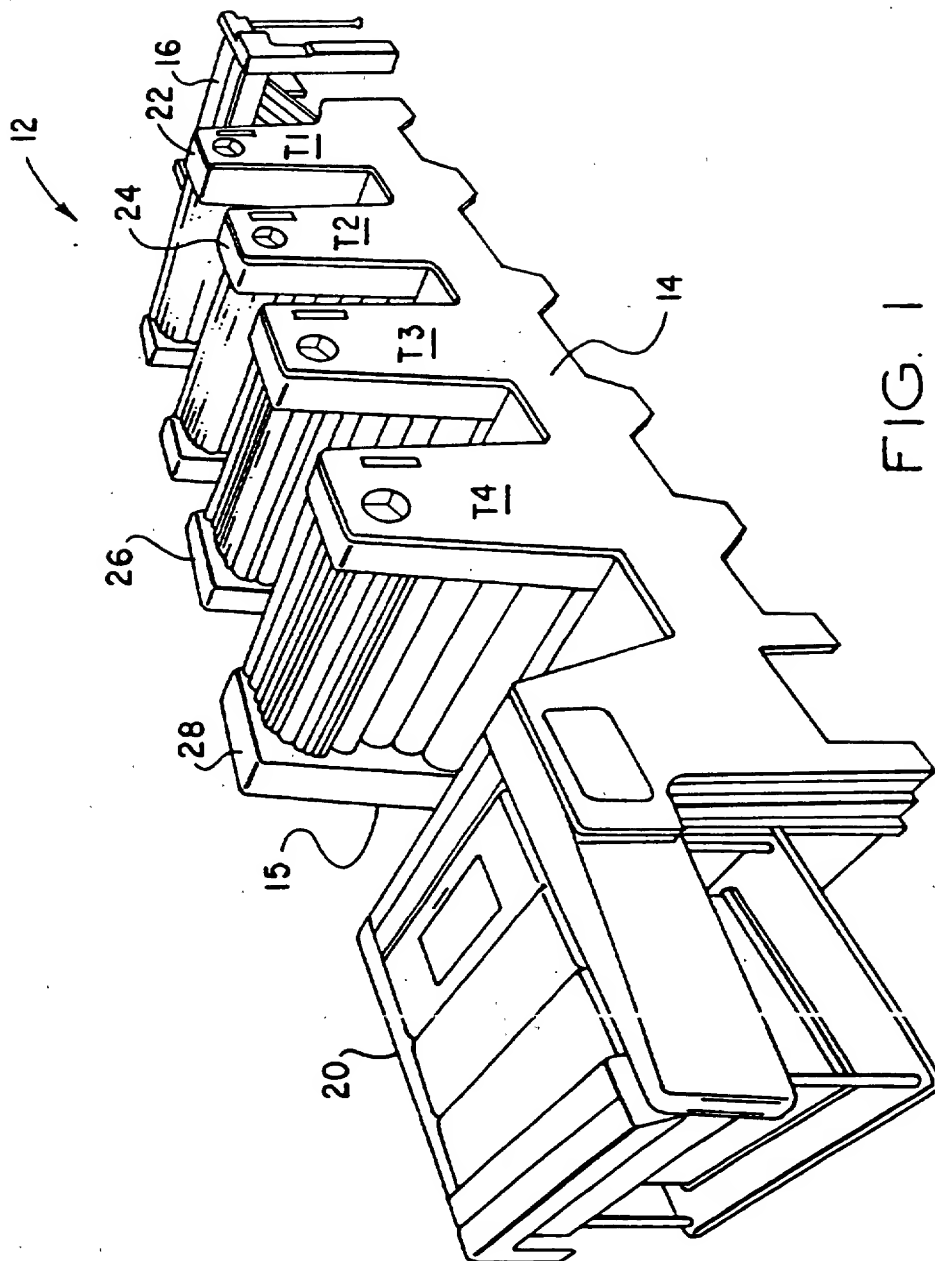
FIG. 1

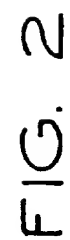
U.S. Patent

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Sheet 1 of 15

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Oct. 5, 1999

Sheet 3 of 15

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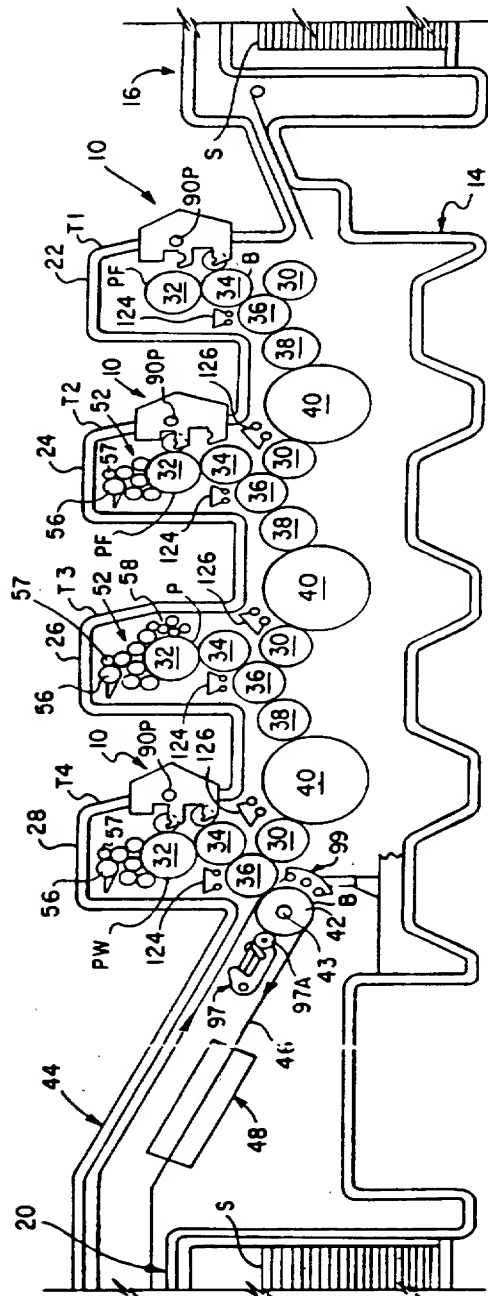
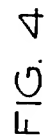


FIG. 3



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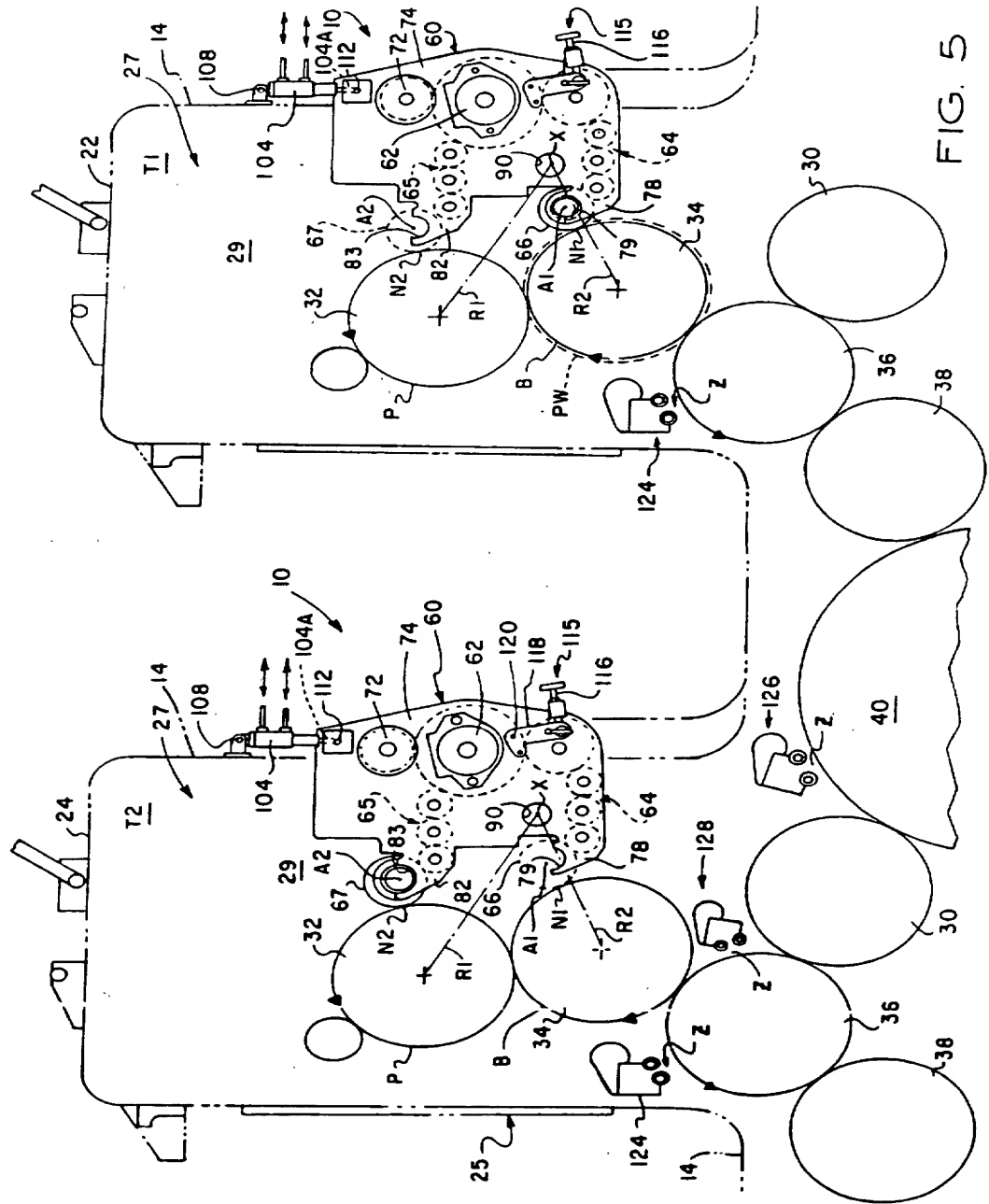
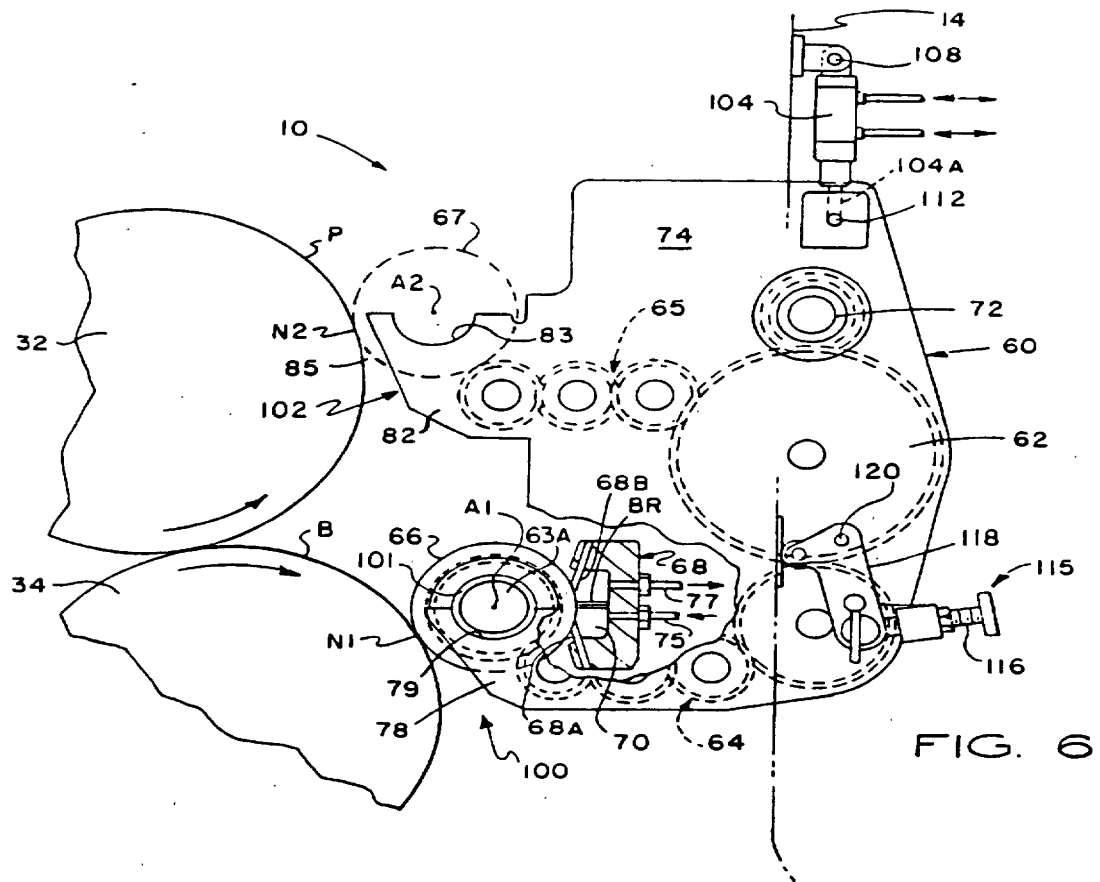


FIG. 5

TOP VIEW OF FIG. 6



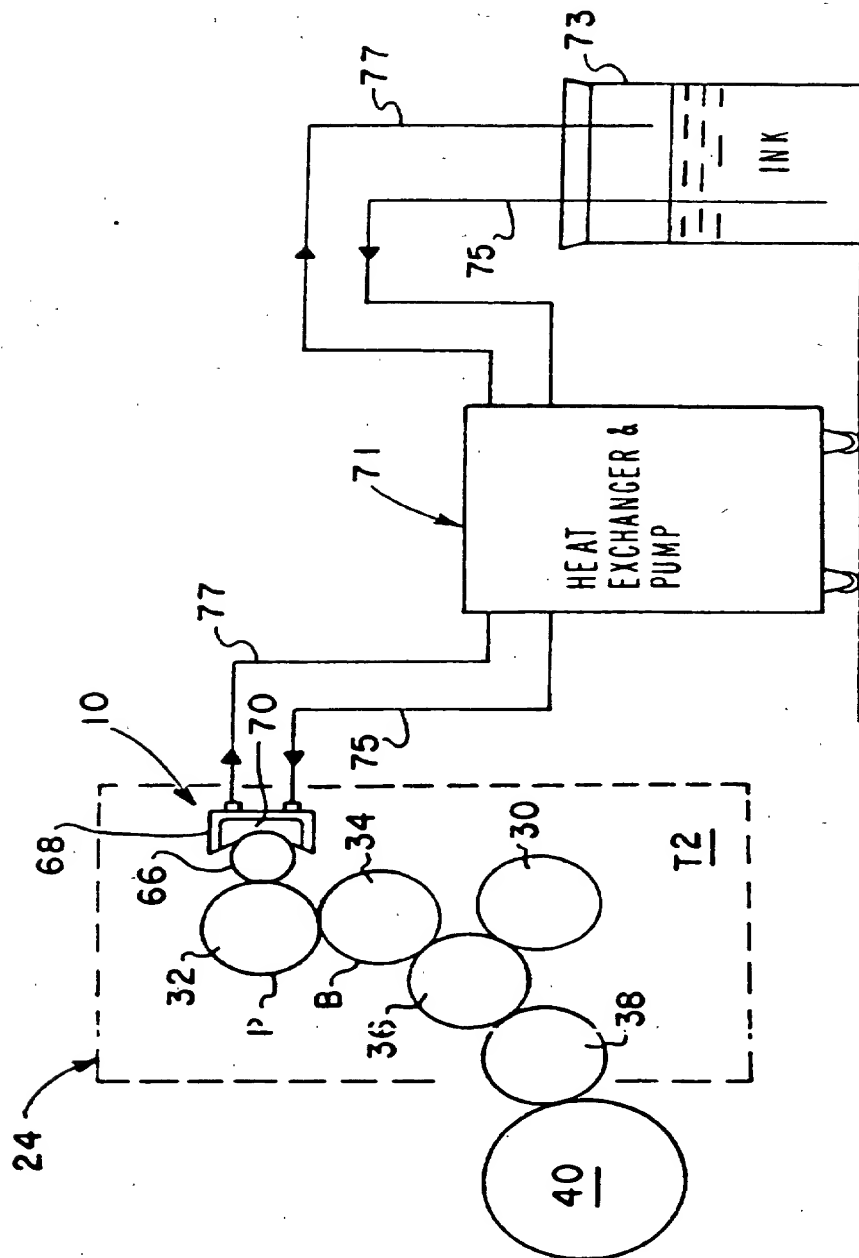


FIG. 7

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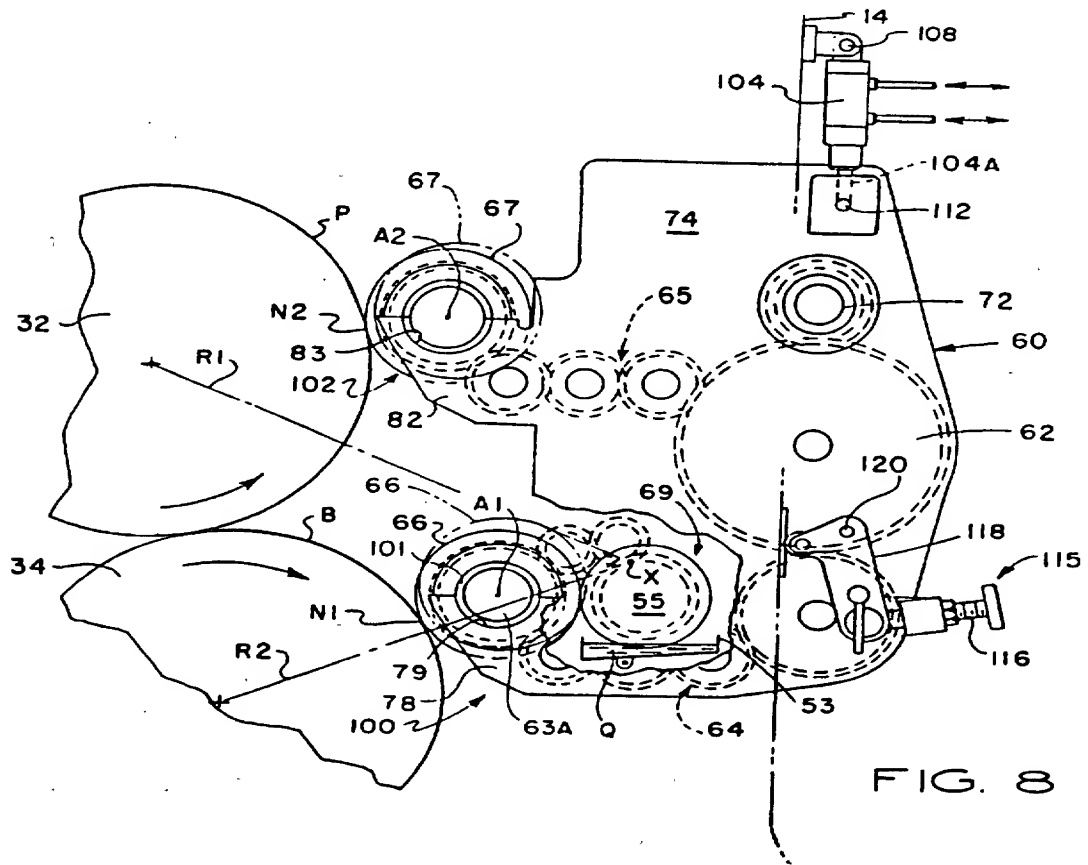


FIG. 9

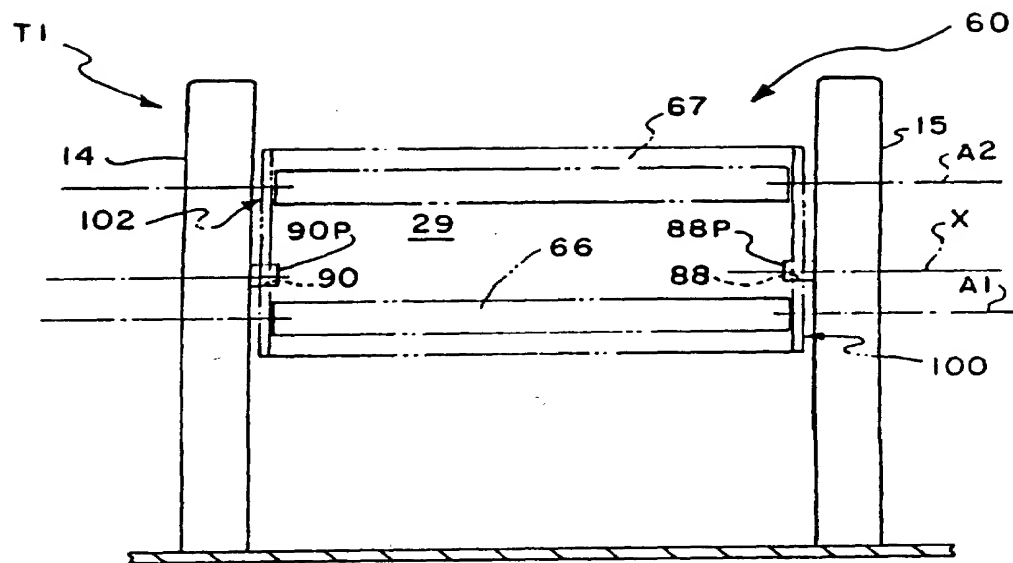
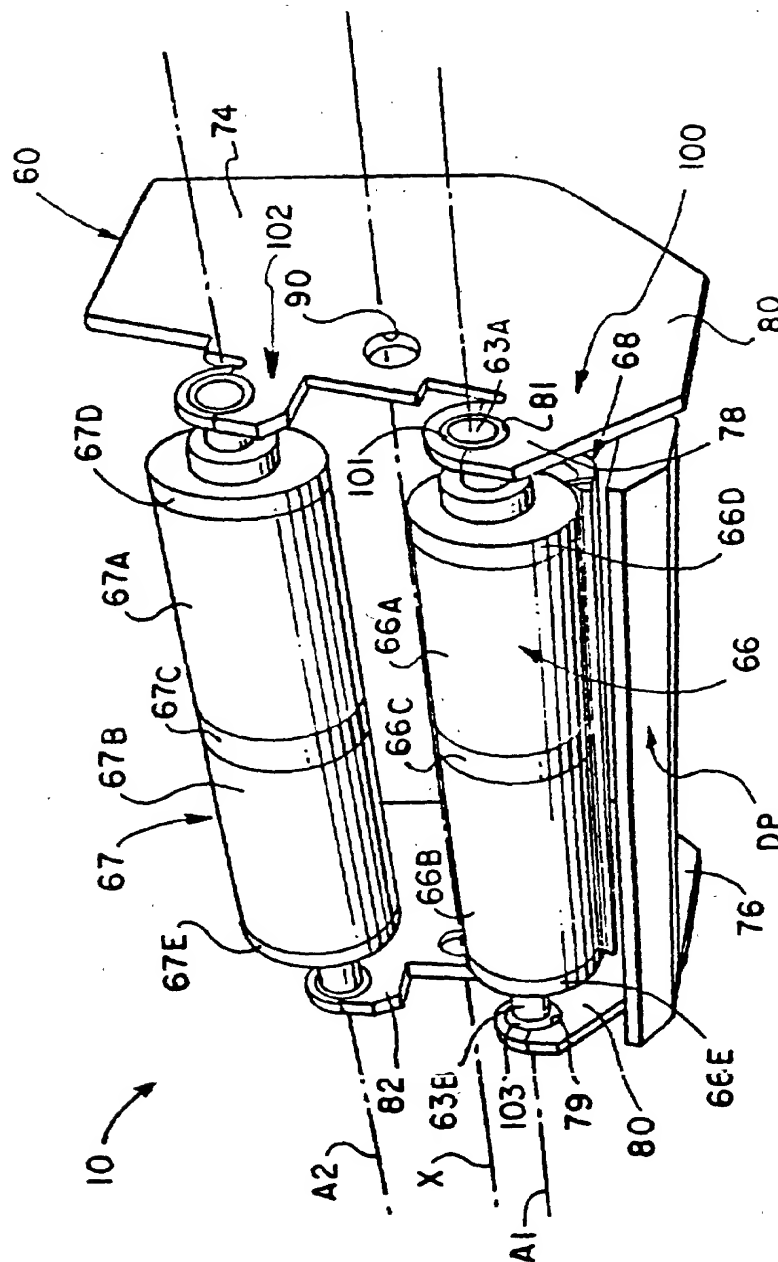


FIG. 9



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FIG. 11

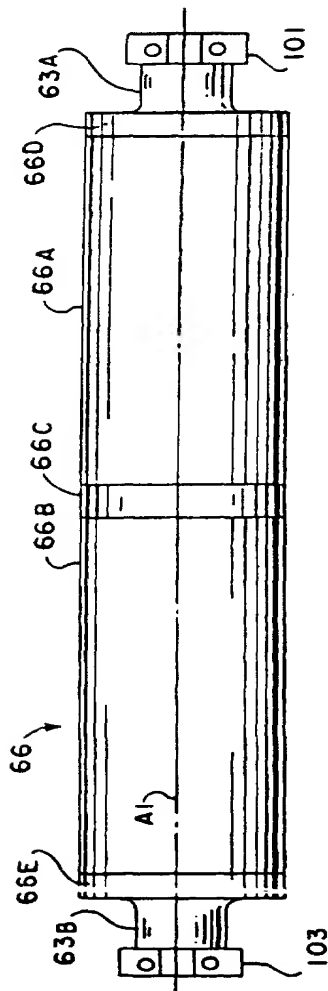


FIG. 11

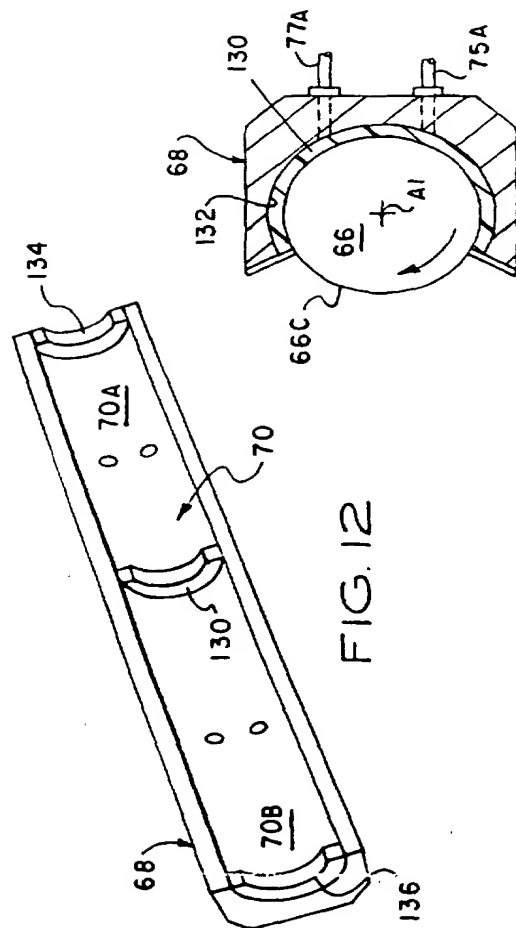
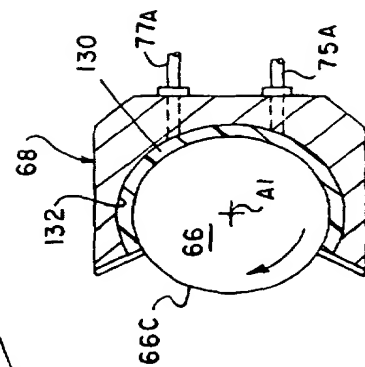


FIG. 12

FIG. 13



U.S. Patent 5,960,713

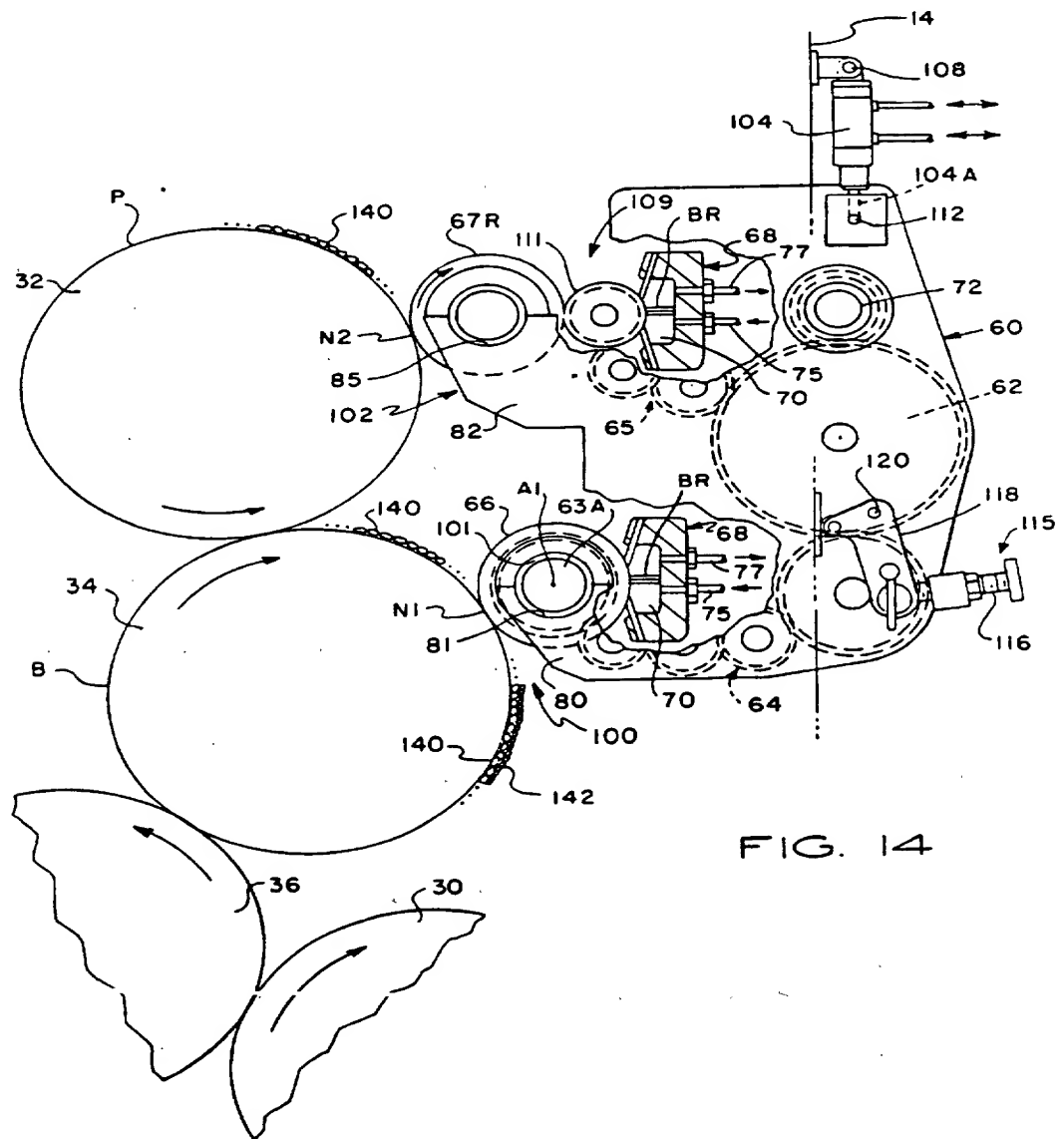


FIG. 14

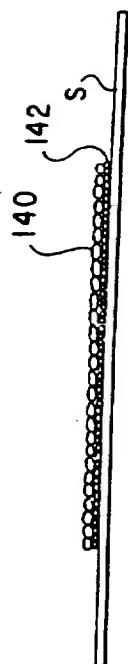
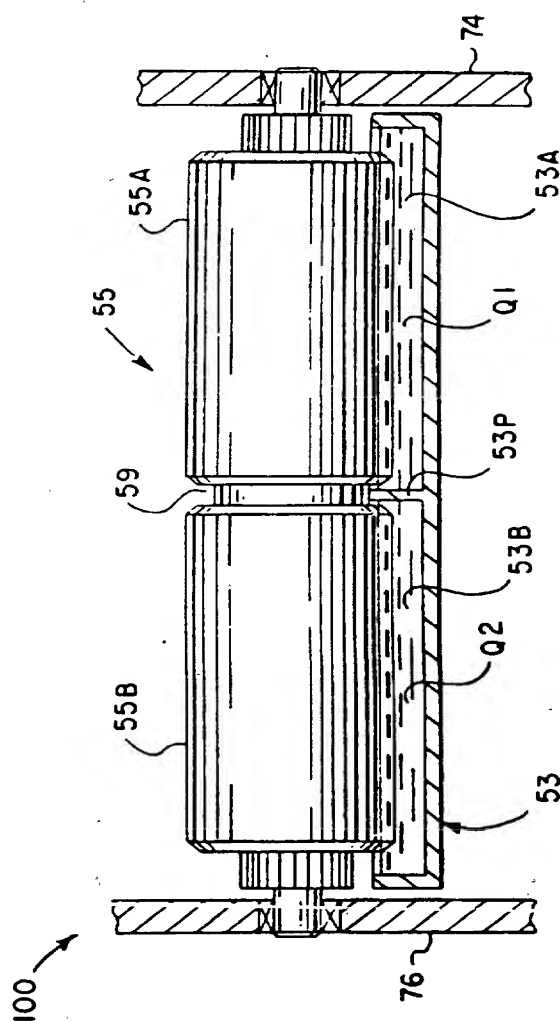
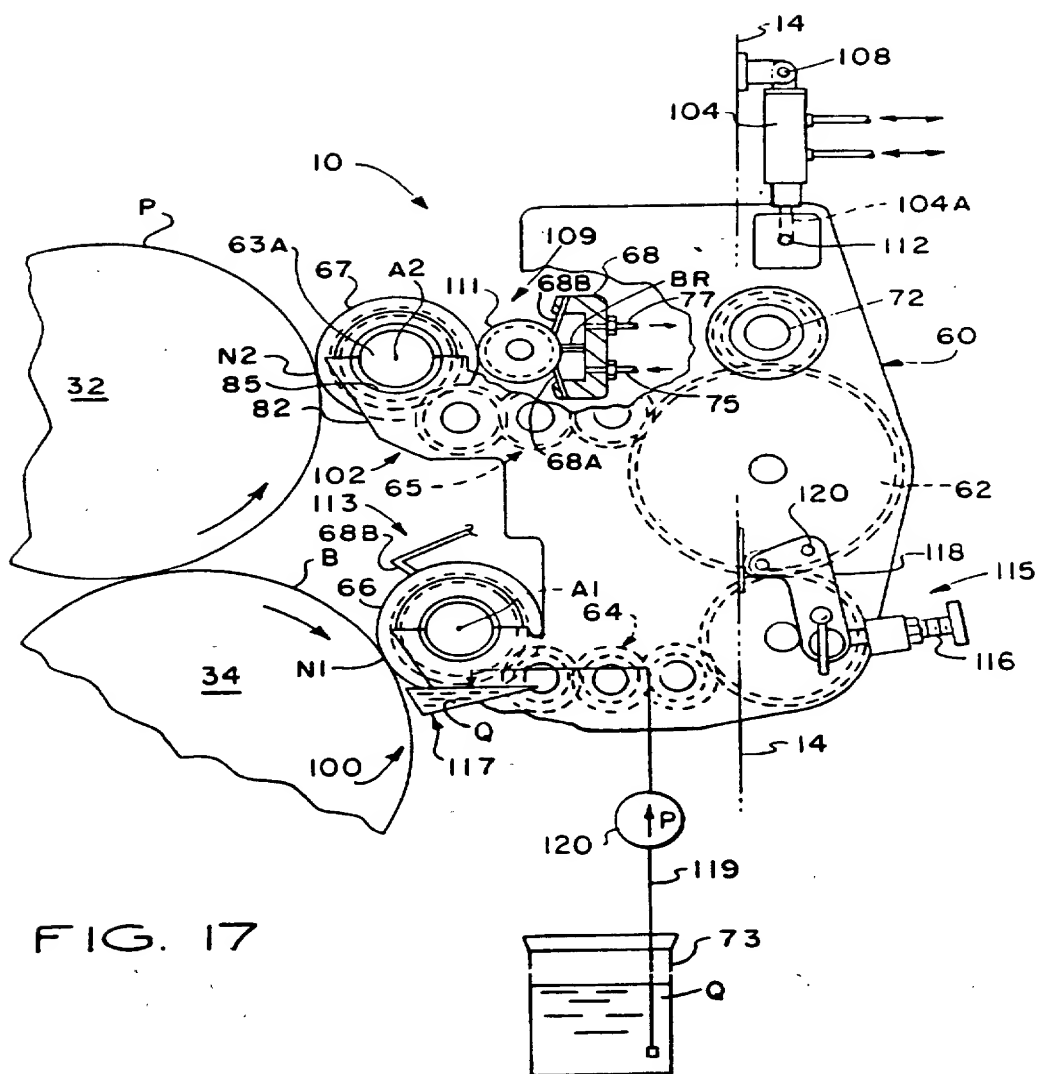


FIG. 15



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TOP VIEW

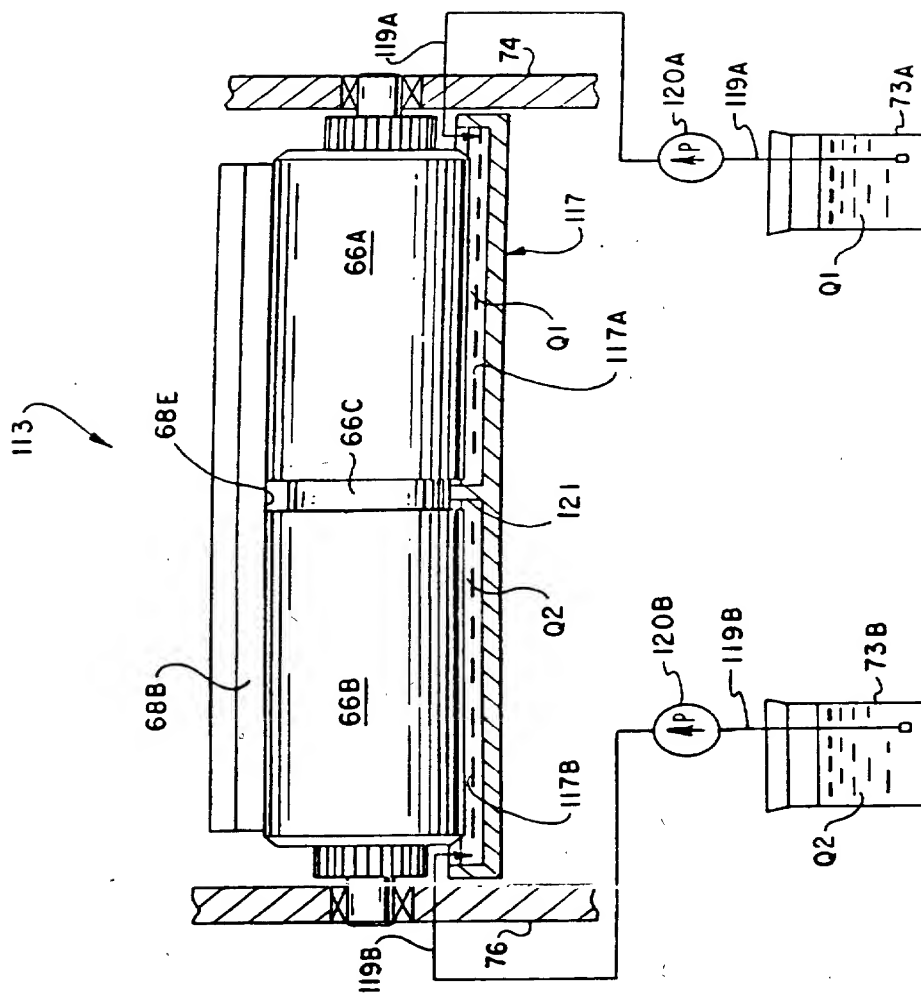


FIG. 18

**RETRACTABLE PRINTING-COATING UNIT
OPERABLE ON THE PLATE AND BLANKET
CYLINDERS SIMULTANEOUSLY FROM THE
DAMPENER SIDE OF THE FIRST PRINTING
UNIT OR ANY CONSECUTIVE PRINTING
UNIT OR ANY ROTARY OFFSET PRINTING
PRESS**

**CROSS REFERENCE TO OTHER
APPLICATIONS**

This application is a continuation-in-part of prior application Ser. No. 08/538,422 filed Oct. 2, 1995, now abandoned by inventors Howard W. DeMoore, Ronald M. Rendleman and John W. Bird which in turn was a continuation-in-part of prior parent application Ser. No. 08/435,798, titled "Retractable Inking/Coating Apparatus Having Ferris Movement Between Printing Units", filed May 4, 1995 by the same inventors for which priority benefit under § 120 is claimed.

FIELD OF THE INVENTION

This invention relates generally to sheet-fed or web-fed, rotary offset lithographic printing presses, and more particularly, to a new and improved inking/coating apparatus for the in-line application of aqueous or flexographic printing inks, primer or protective/decorative coatings applied simultaneously to the plate and blanket of the first or any consecutive printing unit of any lithographic printing press.

BACKGROUND OF THE INVENTION

Conventional sheet-fed, rotary offset printing presses typically include one or more printing units through which individual sheets are fed and printed. After the last printing unit, freshly printed sheets are transferred by a delivery conveyor to the delivery end of the press where the freshly printed and/or coated sheets are collected and stacked uniformly. In a typical sheet-fed, rotary offset printing press such as the Heidelberg Speedmaster line of presses, the delivery conveyor includes a pair of endless chains carrying gripper bars with gripper fingers which grip and pull freshly printed sheets from the last impression cylinder and convey the sheets to the sheet delivery stacker.

Since the inks used with sheet fed rotary offset printing presses are typically wet and tacky, special precautions must be taken to prevent marking and smearing of the freshly printed or coated sheets as the sheets are transferred from one printing unit to another. The printed ink on the surface of the sheet dries relatively slowly and is easily smeared during subsequent transfer between printing units. Marking, smearing and smudging can be prevented by a vacuum assisted sheet transfer apparatus as described in the following U.S. Pat. Nos: 5,113,255; 5,127,329; 5,205,217; 5,228,291; 5,243,909, and 5,419,254, all to Howard W. DeMoore, co-inventor, and manufactured and sold by Printing Research, Inc. of Dallas, Tex., U.S.A. under its trademark BACVAC™.

In some printing jobs, offsetting is prevented by applying a protective and/or decorative coating material over all or a portion of the freshly printed sheets. Some coatings are formed of a UV-curable or water-dispersed resin applied as a liquid solution over the freshly printed sheets to protect the ink from offsetting or set-off and improve the appearance of the freshly printed sheets. Such coatings are particularly desirable when decorative or protective finishes are applied in the printing of posters, record jackets, brochures, magazines, folding cartons and the like.

DESCRIPTION OF THE PRIOR ART

Various arrangements have been made for applying the coating as an in-line printing operation by using the last printing unit of the press as the coating application unit. For example, U.S. Pat. Nos. 4,270,483; 4,685,414; and 4,779,557 disclose coating apparatus which can be moved into position to permit the blanket cylinder of the last printing unit of a printing press to be used to apply a coating material over the freshly printed sheets. In U.S. Pat. No. 4,841,903 (Bird) there are disclosed coating apparatus which can be selectively moved between the plate cylinder or the blanket cylinder of the last printing unit of the press so the last printing unit can only be used for coating purposes. However, when coating apparatus of these types are being used, the last printing unit cannot be used to print ink to the sheets, but rather can only be used for the coating operation. Thus, while coating with this type of in-line coating apparatus, the printing press loses the capability of printing on the last printing unit as it is converted to a coating unit.

The coater of U.S. Pat. No. 5,107,790 (Slaker et al) is retractable along an inclined rail for extending and retracting a coater head into engagement with a blanket on the blanket cylinder. Because of its size, the rail-retractable coater can only be installed between the last printing unit of the press and the delivery sheet stacker, and cannot be used for interunit coating. The coater of U.S. Pat. No. 4,615,293 (Jahn) provides two separate, independent coaters located on the dampener side of a converted printing unit for applying lacquer to a plate and to a rubber blanket. Consequently, although a plate and blanket are provided, the coating unit of Jahn's press is restricted to a dedicated coating operation only.

Proposals have been made for overcoming the loss of a printing unit when in-line coating is used, for example as set forth in U.S. Pat. No. 5,176,077 to Howard W. DeMoore (co-inventor and assignee), which discloses a coating apparatus having an applicator roller positioned to apply the coating material to the freshly printed sheet while the sheet is still on the last impression cylinder of the press. This allows the last printing unit to print and coat simultaneously, so that no loss of printing unit capability results.

Some conventional coaters are rail-mounted and occupy a large amount of press space and reduce access to the press. Elaborate equipment is needed for retracting such coaters from the operative coating position to the inoperative position, which reduces access to the printing unit.

Accordingly, there is a need for an in-line inking/coating apparatus which does not result in the loss of a printing unit, does not extend the length of the press, and which can print and coat aqueous and flexographic inks and coating materials simultaneously onto the plate and blanket on any lithographic printing unit of any lithographic printing press, including the first printing unit.

OBJECTS OF THE INVENTION

Accordingly, a general object of the present invention is to provide improved inking/coating apparatus which is capable of selectively applying ink or coating material to a plate on a plate cylinder or ink or coating material to a plate or blanket on a blanket cylinder.

A specific object of the present invention is to provide improved inking/coating apparatus of the character described which is extendable into inking/coating engagement with either a plate on a plate cylinder or to a plate or blanket on a blanket cylinder.

A related object of the present invention is to provide improved inking/coating apparatus of the character described which is capable of being mounted on any lithographic printing unit of the press and does not interfere with operator access to the plate cylinder, blanket cylinder, or adjacent printing units.

Another object of the present invention is to provide improved inking/coating apparatus of the character described, which can be moved from an operative inking/coating engagement position adjacent to a plate cylinder or a blanket cylinder to a non-operative, retracted position.

Still another object of the present invention is to provide improved inking/coating apparatus of the character described, which can be used for applying aqueous, flexographic and ultra-violet curable inks and/or coatings in combination with lithographic, flexographic and waterless printing processes on any rotary offset printing press.

A related object of the present invention is to provide improved inking/coating apparatus of the character described which is capable of applying aqueous or flexographic ink or coating material on one printing unit, for example the first printing unit, and drying the ink or coating material before it is printed or coated on the next printing unit so that it can be overprinted or overcoated immediately on the next printing unit with waterless, aqueous, flexographic or lithographic inks or coating materials.

Yet another object of the present invention is to provide improved inking/coating apparatus for use on a multiple color rotary offset printing press that can apply ink or coating material separately and/or simultaneously to the plate and/or blanket of a printing unit of the press from a single operative position, and from a single inking/coating apparatus.

A related object of the present invention is to provide improved inking/coating apparatus of the character described, in which virtually no printing unit adjustment or alteration is required when the inking/coating apparatus is converted from plate to blanket printing or coating and vice versa.

Another object of the present invention is to provide improved inking/coating apparatus that can be operably mounted in the dampener space of any lithographic printing unit for inking/coating engagement with either a plate on a plate cylinder or a plate or blanket on a blanket cylinder, and which does not interfere with operator movement or activities in the interunit space between printing units.

SUMMARY OF THE INVENTION

The foregoing objects are achieved by a retractable, in-line inking/coating apparatus which is mounted on the dampener side of any printing unit of a rotary offset press for movement between an operative (on-impression) inking/coating position and a retracted, disengaged (off-impression) position. The inking/coating apparatus includes an applicator roller which is movable into and out of engagement with a plate on a plate cylinder or a blanket on a blanket cylinder. The inking/coating applicator head is pivotally coupled to a printing unit by pivot pins which are mounted on the press side frames in the traditional dampener space of the printing unit in parallel alignment with the plate cylinder and the blanket cylinder. This dampener space mounting arrangement allows the inking/coating unit to be installed between any adjacent printing units on the press.

In the preferred embodiment, the applicator head includes vertically spaced pairs of cradle members with one cradle pair being adapted for supporting an inking/coating appli-

cator roller in alignment with a plate cylinder, and the other cradle pair supporting an inking/coating applicator roller in alignment with the blanket cylinder, respectively, when the applicator head is in the operative position. Because of the pivotal support provided by the pivot pins, the applicator head can be extended and retracted within the limited space available in the traditional dampener space, without restricting operator access to the printing unit cylinders and without causing a printing unit to lose its printing capability.

When the inking/coating apparatus is used in combination with a flexographic printing plate and aqueous or flexographic ink or coating material, the water component of the aqueous or flexographic ink or coating material on the freshly printed or coated sheet is evaporated and dried by a high velocity, hot air interunit dryer and a high volume heat and moisture extractor assembly so that the freshly printed ink or coating material is dry before the sheet is printed or coated on the next printing unit. This quick drying process permits a base layer or film of ink, for example opaque white or metallic (gold, silver or other metallics) ink to be printed on the first printing unit, and then overprinted on the next printing unit without back-trapping or dot gain.

The construction and operation of the present invention will be understood from the following detailed description taken in conjunction with the accompanying drawings which disclose, by way of example, the principles and advantages of the present invention.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a sheet fed, rotary offset printing press having inking/coating apparatus embodying the present invention;

FIG. 2 is a simplified perspective view of the single head, dual cradle inking/coating apparatus of the present invention;

FIG. 3 is a schematic side elevational view of the printing press of FIG. 1 having single head, dual cradle inking/coating apparatus installed in the traditional dampener position of the first, second and last printing units;

FIG. 4 is a simplified side elevational view showing the single head, dual cradle inking/coating apparatus in the operative inking/coating position for simultaneously printing on the printing plate and blanket on the fourth printing unit;

FIG. 5 is a simplified side elevational view showing the single head, dual cradle inking/coating apparatus in the operative position for spot or overall inking or coating on the blanket of the first printing unit, and showing the dual cradle inking/coating apparatus in the operative position for spot or overall inking or coating on the printing plate of the second printing unit;

FIG. 6 is a simplified side elevational view of the single head, dual cradle inking/coating apparatus of FIG. 4 and FIG. 5, partially broken away, showing the single head, dual cradle inking/coating apparatus in the operative coating position and having a sealed doctor blade reservoir assembly for spot or overall coating on the blanket;

FIG. 7 is a schematic view showing a heat exchanger and pump assembly connected to the single head, dual cradle inking/coating apparatus for circulating temperature controlled ink or coating material to the inking/coating apparatus;

FIG. 8 is a side elevational view, partially broken away, and similar to FIG. 6 which illustrates an alternative coating head arrangement;

FIG. 9 is a simplified elevational view of a printing unit which illustrates pivotal coupling of the inking/coating apparatus on the printing unit side frame members;

FIG. 10 is a view similar to FIG. 2 in which a pair of split applicator rollers are mounted in the upper cradle and lower cradle, respectively;

FIG. 11 is a side elevational view of a split applicator roller;

FIG. 12 is a perspective view of a doctor blade reservoir which is centrally partitioned by a seal element;

FIG. 13 is a sectional view showing sealing engagement of the split applicator roller against the partition seal element of FIG. 12;

FIG. 14 is a view similar to FIG. 8 which illustrates an alternative inking/coating embodiment;

FIG. 15 is a simplified side elevational view of a substrate which has a bronzed-like finish which is applied by simultaneous operation of the dual applicator roller embodiment of FIG. 14;

FIG. 16 is a side elevational view, partly in section, of a pan roller having separate transfer surfaces mounted on a split fountain pan;

FIG. 17 is a simplified side elevational view of the dual cradle inking/coating apparatus, partially broken away, which illustrates an alternative inking/coating head apparatus featuring a single doctor blade assembly, anilox applicator roller mounted on the lower cradle; and

FIG. 18 is a side elevational view, partly in section, of a single doctor blade anilox applicator roller assembly having separate transfer surfaces, and a split fountain pan having separate fountain compartments, with the separate fountain compartments being supplied with different inks or coating materials from separate off-press sources.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

As used herein, the term "processed" refers to printing and coating methods which can be applied to either side of a substrate, including the application of lithographic, waterless, UV-curable, aqueous and flexographic inks and/or coatings. The term "substrate" refers to sheet and web material. Also, as used herein, the term "waterless printing plate" refers to a printing plate having image areas and non-image areas which are oleophilic and oleophobic, respectively. "Waterless printing ink" refers to an oil-based ink which does not contain a significant aqueous component. "Flexographic plate" refers to a flexible printing plate having a relief surface which is wettable by flexographic ink or coating material. "Flexographic printing ink or coating material" refers to an ink or coating material having a base consisting of either water, solvent or UV-curable liquid. "UV-curable lithographic printing ink and coating material" refers to oil-based printing inks and coating materials that can be cured (dried) photomechanically by exposure to ultraviolet radiation, and that have a semi-paste or gel-like consistency. "Aqueous printing ink or coating material" refers to an ink or coating material that predominantly contains water as a solvent, diluent or vehicle. A "relief plate" refers to a printing plate having image areas which are raised relative to non-image areas which are recessed.

As shown in the exemplary drawings, the present invention is embodied in a new and improved in-line inking/coating apparatus, herein generally designated 10, for applying aqueous, flexographic or UV-curable inks or protective and/or decorative coatings to sheets or webs printed in a

sheet-fed or web-fed, rotary offset printing press, herein generally designated 12. In this instance, as shown in FIG. 1, the inking/coating apparatus 10 is installed in a four unit rotary offset printing press 12, such as that manufactured by Heidelberg Druckmaschinen AG of Germany under its designation Heidelberg Speedmaster SM102 (40", 102 cm).

The press 12 includes a press frame 14 coupled at one end, herein the right end, to a sheet feeder 16 from which sheets, herein designated S, are individually and sequentially fed into the press, and at the opposite end, with a sheet delivery stacker 20 in which the freshly printed sheets are collected and stacked. Interposed between the sheet feeder 16 and the sheet delivery stacker 20 are four substantially identical sheet printing units 22, 24, 26 and 28 which can print four different colors onto the sheets as they are transferred through the press 12. The printing units are housed within printing towers T1, T2, T3 and T4 formed by side frame members 14, 15. Each printing tower has a delivery side 25 and a dampener side 27. A dampener space 29 is partially enclosed by the side frames on the dampener side of the printing unit.

As illustrated, the printing units 22, 24, 26 and 28 are substantially identical and of conventional design. The first printing unit 22 includes an in-feed transfer cylinder 30, a plate cylinder 32, a blanket cylinder 34 and an impression cylinder 36, all supported for rotation in parallel alignment between the press side frames 14, 15 which define printing unit towers T1, T2, T3 and T4. Each of the first three printing units 22, 24 and 26 have a transfer cylinder 38 disposed to transfer the freshly printed sheets from the adjacent impression cylinder and transfer the freshly printed sheets to the next printing unit via an intermediate transfer drum 40.

The last printing unit 28 includes a delivery cylinder 42 mounted on a delivery shaft 43. The delivery cylinder 42 supports the freshly printed sheet 18 as it is transferred from the last impression cylinder 36 to a delivery conveyor system, generally designated 44, which transfers the freshly printed sheet to the sheet delivery stacker 20. To prevent smearing during transfer, a flexible covering is mounted on the delivery cylinder 42, as described and claimed in U.S. Pat. No. 4,402,267 to Howard W. DeMoore, which is incorporated herein by reference. The flexible covering is manufactured and sold by Printing Research, Inc. of Dallas, Tex., U.S.A., under its trademark SUPER BLUE®. Optionally, a vacuum-assisted sheet transfer assembly manufactured and sold by Printing Research, Inc. of Dallas, Tex., U.S.A., under its trademark BACVAC® can be substituted for the delivery transfer cylinder 42 and flexible covering.

The delivery conveyor system 44 as shown in FIG. 2 is of conventional design and includes a pair of endless delivery gripper chains 46, only one of which is shown carrying at regular spaced locations along the chains, laterally disposed gripper bars having gripper fingers used to grip the leading edge of a freshly printed or coated sheet 18 after it leaves the nip between the impression cylinder 36 and delivery cylinder 42 of the last printing unit 28. As the leading edge is gripped by the gripper fingers, the delivery chains 46 pull the sheet away from the last impression cylinder 36 and convey the freshly printed or coated sheet to the sheet delivery stacker 20.

Prior to reaching the delivery sheet stacker, the freshly printed and/or coated sheets S pass under a delivery dryer 48 which includes a combination of infra-red thermal radiation, high velocity hot air flow and a high performance heat and moisture extractor for drying the ink and/or the protective/

decorative coating. Preferably, the delivery dryer 48, including the high performance heat and moisture extractor is constructed as described in U.S. application Ser. No. 08/116,711, filed Sep. 3, 1993, entitled "Infra-Red Forced Air Dryer and Extractor" by Howard C. Secor, Ronald M. Rendleman and Paul D. Copenhagen, commonly assigned to the assignee of the present invention, Howard W. DeMoore, and licensed to Printing Research, Inc. of Dallas, Tex., U.S.A., which manufactures and markets the delivery dryer 48 under its trademark AIR BLANKET™.

In the exemplary embodiment shown in FIG. 3, the first printing unit 22 has a flexographic printing plate PF mounted on the plate cylinder, and therefore neither an inking roller train nor a dampening system is required. A flexographic printing plate PF is also mounted on the plate cylinder of the second printing unit 24. The form rollers of the inking roller train 52 shown mounted on the second printing unit 24 are retracted and locked off to prevent plate contact. Flexographic ink is supplied to the flexographic plate PF of the second printing unit 24 by the inking/coating apparatus 10.

A suitable flexographic printing plate PF is offered by E.I. du Pont de Nemours of Wilmington, Del., U.S.A., under its trademark CYREL®. Another source is BASF Aktiengesellschaft of Ludwigshafen, Germany, which offers a suitable flexographic printing plate under its trademark NYLOFLEX®.

The third printing unit 26 as illustrated in FIG. 3 and FIG. 4 is equipped for lithographic printing and includes an inking apparatus 50 having an inking roller train 52 arranged to transfer ink Q from an ink fountain 54 to a lithographic plate P mounted on the plate cylinder 32. This is accomplished by a fountain roller 56 and a ductor roller 57. The fountain roller 56 projects into the ink fountain 54, whereupon its surface picks up ink. The lithographic printing ink Q is transferred from the fountain roller 56 to the inking roller train 52 by the ductor roller 57. The inking roller train 52 supplies ink Q to the image areas of the lithographic printing plate P.

The lithographic printing ink Q is transferred from the lithographic printing plate P to an ink receptive blanket B which is mounted on the blanket cylinder 34. The inked image carried on the blanket B is transferred to a substrate S as the substrate is transferred through the nip between the blanket cylinder 34 and the impression cylinder 36.

The inking roller arrangement 52 illustrated in FIG. 3 and FIG. 4 is exemplary for use in combination with lithographic ink printing plates P. It is understood that a dampening system 58 having a dampening fluid reservoir DF is coupled to the inking roller train 52 (FIG. 4), but is not required for waterless or flexographic printing.

The plate cylinder 32 of printing unit 26 is equipped with a waterless printing plate PW. Waterless printing plates are also referred to as dry planographic printing plates and are disclosed in the following U.S. Pat. Nos.: 3,910,187; Re. 30,670; 4,086,093; and 4,853,313. Suitable waterless printing plates can be obtained from Toray Industries, Inc. of Tokyo, Japan. A dampening system is not used for waterless printing, and waterless (oil-based) printing ink is used. The waterless printing plate PW has image areas and non-image areas which are oleophilic/hydrophilic and oleophobic/hydrophobic, respectively. The waterless printing plate PW is engraved or etched, with the image areas being recessed with respect to the non-image areas. The image area of the waterless printing plate PW is rolled-up with the flexographic or aqueous printing ink which is transferred by the

applicator roller 66. Both aqueous and oil-based inks and coatings are repelled from the non-image areas, and are retained in the image areas. The printing ink or coating is then transferred from the image areas to an ink or coating receptive blanket B and is printed or coated onto a substrate S.

For some printing jobs, a flexographic plate PF or a waterless printing plate PW is mounted over a resilient packing such as the blanket B on the blanket cylinder 34, for example as indicated by phantom lines in printing unit 22 of FIG. 5. An advantage of this alternative embodiment is that the waterless plate PW or the flexographic plate PF are resiliently supported over the blanket cylinder by the underlying blanket B or other resilient packing. The radial deflection and give of the resilient blanket B provides uniform, positive engagement between the applicator roller 66 and a flexographic plate or waterless plate.

In that arrangement, a plate is not mounted on the plate cylinder 32; instead, a waterless plate PW is mounted on the blanket cylinder, and the inked image on the waterless printing plate is not offset but is instead transferred directly from the waterless printing plate PW to the substrate S. The water component of flexographic ink on the freshly printed sheet is evaporated by high velocity, hot air dryers and high volume heat and moisture extractors so that the freshly printed aqueous or flexographic ink is dried before the substrate is printed on the next printing unit.

Referring now to FIG. 2, FIG. 3 and FIG. 9, the inking/coating apparatus 10 is pivotally mounted on the side frames 14, 15 for rotation about an axis X. The inking/coating apparatus 10 includes a frame 60, a hydraulic motor 62, a lower gear train 64, an upper gear train 65, an applicator roller 66, a sealed doctor blade assembly 68 (FIG. 6), and a drip pan DP, all mounted on the frame 60. The external peripheral surface of the applicator roller 66 is wetted by contact with liquid coating material or ink contained in a reservoir 70.

The hydraulic motor 62 drives the applicator roller 66 synchronously with the plate cylinder 32 and the blanket cylinder 34 in response to an RPM control signal from the press drive (not illustrated) and a feedback signal developed by a tachometer 72. While a hydraulic drive motor is preferred, other drive means such as an electric drive motor or an equivalent can be used.

When using waterless printing plate systems, the temperature of the waterless printing ink and of the waterless printing plate must be closely controlled for good image reproduction. For example, for waterless offset printing with TORAY waterless printing plates PW, it is absolutely necessary to control the waterless printing plate surface and waterless ink temperature to a very narrow range, for example 24° C. (75° F.) to 27° C. (80° F.).

Referring to FIG. 7, the reservoir 70 is supplied with ink or coating which is temperature controlled by a heat exchanger 71. The temperature controlled ink or coating material is circulated by a positive displacement pump, for example a peristaltic pump, through the reservoir 70 and heat exchanger 71 from a source 73 through a supply conduit 75 and a return conduit 77. The heat exchanger 71 cools or heats the ink or coating material and maintains the ink or coating and the printing plate within the desired narrow temperature range.

According to one aspect of the present invention, aqueous/flexographic ink or coating material is supplied to the applicator roller 66, which transfers the aqueous/flexographic ink or coating material to the printing plate

(FIG. 7), which may be a waterless printing plate or a flexographic printing plate. When the inking/coating apparatus is used for applying aqueous/flexographic ink or coating material to a waterless printing plate PW, the inking roller train 52 is not required, and is retracted away from the printing plate. Because the viscosity of aqueous/flexographic printing ink or coating material varies with temperature, it is necessary to heat or cool the aqueous/flexographic printing ink or coating material to compensate for ambient temperature variations to maintain the ink viscosity in a preferred operating range.

For example, the temperature of the printing press can vary from around 60° F. (15° C.) in the morning, to around 85° F. (29° C.) or more in the afternoon. The viscosity of aqueous/flexographic printing ink or coating material can be marginally high when the ambient temperature of the press is near 60° F. (15° C.), and the viscosity can be marginally low when the ambient temperature of the press exceeds 85° F. (29° C.). Consequently, it is desirable to control the temperature of the aqueous/flexographic printing ink or coating material so that it will maintain the surface temperature of waterless printing plates within the specified temperature range. Moreover, the ink/coating material temperature should be controlled to maintain the tack of the aqueous/flexographic printing ink or coating material within a desired range when the ink or coating material is being used in connection with flexographic printing processes.

The applicator roller 66 is preferably an anilox fluid metering roller which transfers measured amounts of printing ink or coating material to a plate or blanket. The surface of an anilox roller is engraved with an array of closely spaced, shallow depressions referred to as "cells". Ink or coating from the reservoir 70 flows into the cells as the anilox roller turns through the reservoir. The transfer surface of the anilox roller is "doctored" (wiped or scraped) by dual doctor blades 68A, 68B to remove excess ink or coating material. The ink or coating metered by the anilox roller is that contained within the cells. The dual doctor blades 68A, 68B also seal the supply reservoir 70.

The anilox applicator roller 66 is cylindrical and may be constructed in various diameters and lengths, containing cells of various sizes and shapes. The volumetric capacity of an anilox roller is determined by cell size, shape and number of cells per unit area. Depending upon the intended application, the cell pattern may be fine (many small cells per unit area) or coarse (fewer large cells per unit area).

By supplying the ink or coating material through the inking/coating apparatus 10, more ink or coating material can be applied to the sheet S as compared with the inking roller train of a lithographic printing unit. Moreover, color intensity is stronger and more brilliant because the aqueous or flexographic ink or coating material is applied at a much heavier film thickness or weight than can be applied by the lithographic process, and the aqueous or flexographic colors are not diluted by dampening solution.

Preferably, the sealed doctor blade assembly 68 is constructed as described in U.S. Pat. No. 5,176,077 to Howard W. DeMoore, co-inventor and assignee, which is incorporated herein by reference. An advantage of using a sealed reservoir is that fast drying ink or coating material can be used. Fast drying ink or coating material can be used in an open fountain 53 (see FIG. 8); however, open air exposure causes the water and solvents in the fast-drying ink or coating material to evaporate faster, thus causing the ink or coating material to dry prematurely and change viscosity. Moreover, an open fountain emits unwanted odors into the

press room. When the sealed doctor blade assembly is utilized, the pump (FIG. 7) which circulates ink or coating material to the doctor blade head is preferably a peristaltic pump, which does not inject air into the feeder lines which supply the ink or coating reservoir 70 and helps to prevent the formation of air bubbles and foam within the ink or coating material.

An inking/coating apparatus 10 having an alternative applicator roller arrangement is illustrated in FIGS. 10-13. In this arrangement, the engraved metering surface of the anilox applicator rollers 66, 67 are partitioned by smooth seal surfaces 66C which separates a first engraved peripheral surface portion 66A from a second engraved peripheral surface portion 66B. Likewise, smooth seal surfaces 66D, 66E are formed on the opposite end portions of the applicator roller 66 for engaging end seals 134, 136 (FIG. 12) of the doctor blade reservoir. The upper applicator roller 67 has engraved anilox metering surfaces 67A and 67B which are separated by a smooth seal band 67C.

Referring now to FIG. 12 and FIG. 13, the reservoir 70 of the doctor blade head 68 is partitioned by a curved seal element 130 to form two separate chambers 70A, 70B. The seal element 130 is secured to the doctor blade head within an annular groove 132. The seal element 130 is preferably made of polyurethane foam or other durable, resilient foam material. The seal element 130 is engaged by the seal band 66, thus forming a rotary seal which blocks the leakage of ink or coating material from one reservoir chamber into the other reservoir chamber. Moreover, the seal band provides an unprinted or uncoated area which separates the printed or coated areas from each other, which is needed for work and turn printing jobs or other printing jobs which print two or more separate images onto the same substrate.

Another advantage of the split applicator roller embodiment is that it enables two or more flexographic inks or coating materials to be printed simultaneously within the same lithographic printing unit. That is, the reservoir chambers 70A, 70B of the upper doctor blade assembly can be supplied with gold ink and silver ink, for example, while the reservoir chambers 70A, 70B of the lower doctor blade assembly can be supplied with inks of two additional colors, for example opaque white ink and blue ink. This permits the opaque white ink to be overprinted with the gold ink, and the blue ink to be overprinted with the silver ink on the same printing unit on any lithographic press.

Moreover, a catalyst can be used in the upper doctor blade reservoir and a reactive ink or coating material can be used in the lower doctor blade reservoir. This can provide various effects, for example improved chemical resistance and higher gloss levels.

The split applicator roller sections 67A, 67B in the upper cradle position can be used for applying two separate inks or coating materials simultaneously, for example flexographic, aqueous and ultra-violet curable inks or coating materials, to separate surface areas of the plate, while the lower applicator roller sections 66A, 66B can apply an initiator layer and a microencapsulated layer simultaneously to separate blanket surface areas. Optionally, the metering surface portions 66A, 66B can be provided with different cell metering capacities for providing different printing effects which are being printed simultaneously. For example, the screen line count on one half-section of an anilox applicator roller is preferably in the range of 200-600 lines per inch (79-236 lines per cm) for half-tone images, and the screen line count of the other half-section is preferably in the range of 100-300 lines per inch (39-118 lines per cm) for overall coverage, high

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weight applications such as opaque white. This split arrangement in combination with dual applicator rollers is particularly advantageous when used in connection with "work and turn" printing jobs.

Referring again to FIG. 8, instead of using the sealed doctor blade reservoir assembly 68 as shown in FIG. 6, an open fountain assembly 69 is provided by the fountain pan 53 which contains a volume of liquid ink Q or coating material. The liquid ink or coating material is transferred to the applicator roller 66 by a pan roller 55 which turns in contact with ink Q or coating material in the fountain pan. If a split applicator roller is used, the pan roller 55 is also split, and the pan is divided into two pan sections 53A, 53B by a separator plate 53P, as shown in FIG. 16.

In the alternative embodiment of FIG. 16, the pan roller 55 is divided into two pan roller sections 55A, 55B by a centrally located, annular groove 59. The separator plate 53P is received within and centrally aligned with the groove 59, but does not touch the adjoining roller faces. By this arrangement, two or more inks or coating materials Q1, Q2 are contained within the open pan sections 55A, 55B for transfer by the split pan roller sections 53A, 53B, respectively. This permits two or more flexographic inks or coating materials to be transferred to two separate image areas on the plate or on the blanket of the same printing unit. This arrangement is particularly advantageous for work and turn printing jobs or other printing jobs which print two or more separate images onto the same substrate.

The frame 60 of the inking/coating apparatus 10 includes side support members 74, 76 which support the applicator roller 66, gear train 64, gear train 65, doctor blade assembly 68 and the drive motor 62. The applicator roller 66 is mounted on stub shafts 63A, 63B which are supported at opposite ends on a lower cradle assembly 100 formed by a pair of side support members 78, 80 which have sockets 79, 81 and retainer caps 101, 103. The stub shafts are received in roller bearings 105, 107 which permit free rotation of the applicator roller 66 about its longitudinal axis A1 (axis A2 in the upper cradle). The retainer caps 101, 103 hold the stub shafts 63A, 63B and bearings 105, 107 in the sockets 79, 81 and hold the applicator roller 66 in parallel alignment with the pivot axis X.

The side support members 74, 76 also have an upper cradle assembly 102 formed by a pair of side support members 82, 84 which are vertically spaced with respect to the lower side plates 78, 80. Each cradle 100, 102 has a pair of sockets 79, 81 and 83, 85, respectively, for holding an applicator roller 66, 67 for spot coating or inking engagement with the printing plate P on the plate cylinder 32 (FIG. 4) or with a printing plate P or a blanket B on the blanket cylinder 34.

Preferably, the applicator roller 67 (FIG. 8, FIG. 9) the upper cradle (plate) position is an anilox roller having a resilient transfer surface. In the dual cradle arrangement as shown in FIG. 2, the press operator can quickly change from blanket inking/coating to plate inking/coating within minutes, since it is only necessary to release, remove and reposition or replace the applicator roller 66.

The capability to simultaneously print in the flexographic mode, the aqueous mode, the waterless mode, or the lithographic mode on different printing units of the same lithographic press and to print or coat from either the plate position or the blanket position on any one of the printing units is referred to herein as the LITHOFLEX™ printing process or system. LITHOFLEX™ is a trademark of Printing Research, Inc. of Dallas, Tex., U.S.A., exclusive licensee of the present invention.

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Referring now to FIG. 14, an inking/coating apparatus 10 having an inking/coating assembly 109 of an alternative design is installed in the upper cradle position for applying ink and/or coating material to a plate P on the plate cylinder 32. According to this alternative embodiment, an applicator roller 67R having a resilient transfer surface is coupled to an anilox fluid metering roller which transfers measured amounts of printing ink or coating material to the plate P. The anilox roller 111 has a transfer surface constructed of metal, ceramic or composite material which is engraved with cells. The resilient applicator roller 67R is interposed in transfer engagement with the plate P and the metering surface of the anilox roller 111. The resilient transfer surface of the applicator roller 67R provides uniform, positive engagement with the plate.

Referring now to FIG. 17, an inking/coating apparatus 10 having an alternative inking/coating assembly 113 is installed in the lower cradle assembly 100 for applying flexographic or aqueous ink and/or coating material Q to a plate or blanket mounted on the blanket cylinder 34. Instead of using the sealed, dual doctor blade reservoir assembly 68 as shown in FIG. 6, an open, single doctor blade anilox roller assembly 113 is supplied with liquid ink Q or coating material contained in an open fountain pan 117. The liquid ink or coating material Q is transferred to the engraved transfer surface of the anilox roller 66 as it turns in the fountain pan 117. Excess ink or coating material Q is removed from the engraved transfer surface by a single doctor blade 68B. The liquid ink or coating material Q is pumped from an off-press source, for example the drum 73 shown in FIG. 17, through a supply conduit 119 into the fountain pan 117 by a pump 120.

For overall inking or coating jobs, the metering transfer surface of the anilox roller 66 extends over its entire peripheral surface. However, for certain printing jobs which print two or more separate images onto the same substrate, for example work and turn printing jobs, the metering transfer surface of the anilox applicator roller 66 is partitioned by a centrally located, annular undercut groove 66C which separates first and second metering transfer surfaces 66A, 66B as shown in FIG. 11 and FIG. 18.

The single doctor blade 68B has an edge 68E which wipes simultaneously against the split metering transfer surfaces 66A, 66B. In this single blade, split anilox roller embodiment 113, it is necessary to provide dual supply sources, for example drums 73A, 73B, dual supply lines 119A, 119B, and dual pumps 120A, 120B. Moreover, the fountain pan 117 is also split, and the pan 117 is divided into two pan sections 117A, 117B by a separator plate 121, as shown in FIG. 18. The separator plate 121 is centrally aligned with the undercut groove 66C, but does not touch the adjoining roller faces.

Although the single blade, split anilox applicator roller assembly 113 is shown mounted in the lower cradle position (FIG. 17), it should be understood that the single blade, split anilox applicator roller assembly 113 can be mounted and used in the upper cradle position, as well.

According to another aspect of the present invention, the inking/coating apparatus 10 is pivotally coupled on horizontal pivot pins 88P, 90P which allows the single head, dual cradle inking/coating apparatus 10 to be mounted on any lithographic printing unit. Referring to FIG. 9, the horizontal pivot pins 88P, 90P are mounted within the traditional dampener space 29 of the printing unit and are secured to the press side frames 14, 15, respectively. Preferably, the pivot support pins 88P, 90P are secured to the press side frames by

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a threaded fastener. The pivot support pins are received within circular openings 88, 90 which intersect the side support members 74, 76 of the inking/coating apparatus 10. The horizontal support pins 88P, 90P are disposed in parallel alignment with rotational axis X and with the plate cylinder and blanket cylinder, and are in longitudinal alignment with each other.

Preferably, the pivot pins 88P, 90P are located in the dampener space 29 so that the rotational axes A1, A2 of the applicator rollers 66, 67 are elevated with respect to the nip contact points N1, N2. By that arrangement, the transfer point between the applicator roller 66 and a blanket on the blanket cylinder 34 (as shown in FIG. 8) and the transfer point between the applicator roller 66 and a plate on the plate cylinder 32 (as shown in FIG. 5) are above the radius lines R1, R2 of the plate cylinder and the blanket cylinder, respectively. This permits the inking/coating apparatus 10 to move clockwise to retract the applicator roller 66 to an off-impression position relative to the blanket cylinder in response to a single extension stroke of the power actuator arms 104A, 106A. Similarly, the applicator roller 66 is moved counterclockwise to the on-impression operative position as shown in FIGS. 4, 5, 6 and 8 by a single retraction stroke of the actuator arms 104A, 106A, respectively.

Preferably, the pivot pins are made of steel and the side support members are made of aluminum, with the steel pivot pins and the aluminum collar portion bordering the circular openings 88, 90 forming a low friction journal. By this arrangement, the inking/coating apparatus 10 is freely rotatable clockwise and counterclockwise with respect to the pivot pins 88P, 90P. Typically, the arc length of rotation is approximately 60 mils (about 1.5 mm). Consequently, the inking/coating apparatus 10 is almost totally enclosed within the dampener space 29 of the printing unit in the on-impression position and in the off-impression position.

The cradle assemblies 100 and 102 position the applicator roller 66 in inking/coating alignment with the plate cylinder or blanket cylinder, respectively, when the inking/coating apparatus 10 is extended to the operative (on-impression) position. Moreover, because the inking/coating apparatus 10 is installed within the dampener space 29, it is capable of freely rotating through a small arc while extending and retracting without being obstructed by the press side frames or other parts of the printing press. This makes it possible to install the inking/coating apparatus 10 on any lithographic printing unit. Moreover, because of its internal mounting position within the dampener space 29, the projection of the inking/coating apparatus 10 into the space between printing units is minimal. This assures unrestricted operator access to the printing unit when the applicator head is in the operative (on-impression) and retracted (off-impression) positions.

As shown in FIG. 4 and FIG. 5, movement of the inking/coating apparatus 10 is counterclockwise from the retracted (off-impression) position to the operative (on-impression) position.

Although the dampener side installation is preferred, the inking/coating apparatus 10 can be adapted for operation on the delivery side of the printing unit, with the inking/coating apparatus being movable from a retracted (off-impression) position to an on-impression position for engagement of the applicator roller with either a plate on the plate cylinder or a blanket on the blanket cylinder on the delivery side 25 of the printing unit.

Movement of the inking/coating apparatus 10 to the operative (on-impression) position is produced by power

actuators, preferably double acting pneumatic cylinders 104, 106 which have extendable/retractable power transfer arms 104A, 106A, respectively. The first pneumatic cylinder 104 is pivotally coupled to the press frame 14 by a pivot pin 108, and the second pneumatic cylinder 106 is pivotally coupled to the press frame 15 by a pivot pin 110. In response to selective actuation of the pneumatic cylinders 104, 106, the power transfer arms 104A, 106A are extended or retracted. The power transfer arm 104A is pivotally coupled to the side support member 74 by a pivot pin 112. Likewise, the power transfer arm 106A is pivotally coupled to the side support member 76 by a pivot pin 114.

As the power arms extend, the inking/coating apparatus 10 is rotated clockwise on the pivot pins 88P, 90P, thus moving the applicator roller 66 to the off-impression position. As the power arms retract, the inking/coater apparatus 60 is rotated counterclockwise on the pivot pins 88P, 90P, thus moving the applicator roller 66 to the on-impression position. The torque applied by the pneumatic actuators is transmitted to the inking/coating apparatus 10 through the pivot pin 112 and pivot pin 114.

Fine adjustment of the on-impression position of the applicator roller relative to the plate cylinder or the blanket cylinder, and of the pressure of roller engagement, is provided by an adjustable stop assembly 115. The adjustable stop assembly 115 has a threaded bolt 116 which is engageable with a bell crank 118.

The bell crank 118 is pivotally coupled to the side support member 74 on a pin 120. One end of the bell crank 118 is engageable by the threaded bolt 116, and a cam roller 122 is mounted for rotation on its opposite end. The striking point of engagement is adjusted by rotation of the bolt 116 so that the applicator roller 66 is properly positioned for inking/coating engagement with the plate P or blanket B and provides the desired amount of inking/coating pressure when the inking/coating assembly 60 is moved to the operative position.

This arrangement permits the in-line inking/coating apparatus to operate effectively without encroaching in the interunit space between any adjacent printing units, and without blocking or obstructing access to the cylinders of the printing units when the inking/coating apparatus is in the extended (off-impression) position or retracted (on-impression) position. Moreover, when the in-line inking/coating apparatus is in the retracted position, the doctor blade reservoir and coating circulation lines can be drained and flushed automatically while the printing press is running as well as when the press has been stopped for change-over from one job to another or from one type of ink or coating to another.

Substrates which are printed or coated with aqueous flexographic printing inks require high velocity hot air for drying. When printing a flexographic ink such as opaque white or metallic gold, it is always necessary to dry the printed substrates between printing units before overprinting them. According to the present invention, the water component on the surface of the freshly printed or coated substrate S is evaporated and dried by high velocity, hot air interunit dryer and high volume heat and moisture extractor units 124, 126 and 128, as shown in FIG. 2, FIG. 4 and FIG. 5. The dryer/extractor units 124, 126 and 128 are oriented to direct high velocity heated air onto the freshly printed/coated substrates as they are transferred by the impression cylinder 36 and the intermediate transfer drum 40 of one printing unit and to another transfer cylinder 30 and to the impression cylinder 36 of the next printing unit. By that

arrangement, the freshly printed flexographic ink or coating material is dried before the substrate S is overprinted by the next printing unit.

The high velocity, hot air dryer and high performance heat and moisture extractor units 124, 126 and 128 utilize high velocity air jets which scrub and break-up the moist air layer which clings to the surface of each freshly printed or coated sheet or web. Within each dryer, high velocity air is heated as it flows across a resistance heating element within an air delivery baffle tube. High velocity jets of hot air are discharged through multiple airflow apertures into an exposure zone Z (FIG. 4 and FIG. 5) and onto the freshly printed/coated sheet S as it is transferred by the impression cylinder 36 and transfer drum 40, respectively.

Each dryer assembly includes a pair of air delivery dryer heads 124D, 126D and 128D which are arranged in spaced, side-by-side relationship. The high velocity, hot air dryer and high performance heat and moisture extractor units 124, 126 and 128 are preferably constructed as disclosed in co-pending U.S. patent application Ser. No. 08/132,584, filed Oct. 6, 1993, entitled "High Velocity Hot Air Dryer", to Howard W. DeMoore, co-inventor and assignee of the present invention, and which is incorporated herein by reference, and which is marketed by Printing Research, Inc. of Dallas, Tex., U.S.A., under its trademark SUPER BLUE HVTM.

The hot moisture-laden air displaced from the surface of each printed or coated sheet is extracted from the dryer exposure zone Z and exhausted from the printing unit by the high volume extractors 124, 126 and 128. Each extractor head includes an extractor manifold 124E, 126E and 128E coupled to the dryer heads 124D, 126D and 128D and draws the moisture, volatiles, odors and hot air through a longitudinal air gap G between the dryer heads. Best results are obtained when extraction is performed simultaneously with drying. Preferably, an extractor is closely coupled to the exposure zone Z at each dryer location as shown in FIG. 4. Extractor heads 124E, 126E and 128E are mounted on the dryer heads 124D, 126D and 128D, respectively, with the longitudinal extractor air gap G facing directly into the exposure zone Z. According to this arrangement, each printed or coated sheet is dried before it is printed on the next printing unit.

The aqueous water-based inks used in flexographic printing evaporate at a relatively moderate temperature provided by the interunit high velocity hot air dryers/extractors 124, 126 and 128. Sharpness and print quality are substantially improved since the flexographic ink or coating material is dried before it is overprinted on the next printing unit. Since the freshly printed flexographic ink is dry, dot gain is substantially reduced and back-trapping on the blanket of the next printing unit is virtually eliminated. This interunit drying/extracting arrangement makes it possible to print flexographic inks such as metallic ink and opaque white ink on the first printing unit, and then dry-trap and overprint on the second and subsequent printing units.

Moreover, this arrangement permits the first printing unit 22 to be used as a coater in which a flexographic, aqueous or UV-curable coating material is applied to the lowest grade substrate such as recycled paper, cardboard, plastic and the like, to trap and seal-in lint, dust, spray powder and other debris and provide a smoother, more durable printing surface which can be overprinted on the next printing unit.

A first down (primer) aqueous coating layer seals-in the surface of a low grade, rough substrate, for example, re-cycled paper or plastic, and improves overprinted dot

definition and provides better ink lay-down while preventing strike-through and show-through. A flexographic UV-curable coating material can then be applied downstream over the primer coating, thus producing higher coating gloss.

Preferably, the applicator roller 66 is constructed of composite carbon fiber material, metal or ceramic coated metal when it is used for applying ink or coating material to the blanket B or other resilient material on the blanket cylinder 34. When the applicator roller 66 is applied to the plate, it is preferably constructed as an anilox roller having a resilient, compressible transfer surface. Suitable resilient roller surface materials include Buna N synthetic rubber and EPDM (terpolymer elastomer). EPDM is known to be completely acceptable for use with UV-curable inks and coating applications.

A demonstration resilient anilox roller was made by covering a steel core with about 1/2 inch of rubber to a diameter of about four inches. The rubber had a hardness of about 80 on the Shore "A" scale. The surface was laser engraved by Consolidated Engravers, 2255 West Longhorn Dr., Lancaster, Tex. 76134 with four different patterns in approximately 10 inch wide bands across the face comprising about 125,150,175 and 200 lines/inch with what was a "hexagonal" cell pattern. Satisfactory coatings were applied via the plate cylinder to a substrate with all four patterns. A second resilient anilox roll was obtained which had only one 150 lines/inch overall pattern with a cell volume of about 9 cubic billion microns (CBM). Satisfactory coating was applied from this roll against a plate. Coating was applied to the roll by a sealed doctor blade assembly like assembly 68 in FIG. 6. The roller produced useful film weight. Water based inks were applied satisfactorily in various colors. The surface speed of the plate and resilient anilox rollers were kept about the same. No reason is seen why a roller train similar to fountain assembly 69 in FIG. 8 could not be used to supply coating to a resilient anilox roller 66. The resilient anilox roller will accommodate slight variations in elevation of a printing plate or blanket much better than a ceramic or hard surface anilox roller.

It has been demonstrated in prototype testing that the inking/coating apparatus 10 can apply a wide range of ink and coating types, including fluorescent (Day Glo), pearlescent, metallics (gold, silver and other metals), glitter, scratch and sniff (micro-encapsulated fragrance), scratch and reveal, luminous, pressure-sensitive adhesives and the like, as well as UV-curable and aqueous coatings.

With the dampener assembly removed from the printing unit, the inking/coating apparatus 10 can easily be installed in the dampener space for selectively applying flexographic inks and/or coatings to a flexographic or waterless printing plate or to the blanket. Moreover, overprinting of the flexographic inks and coatings can be performed on the next printing unit since the flexographic inks and/or coatings are dried by the high velocity, hot air interunit dryer and high volume heat and moisture extractor assembly of the present invention or by Ultra Violet curing.

The flexographic inks and coatings as used in the present invention contain colored pigments and/or soluble dyes, binders which fix the pigments onto the surface of the substrate, waxes, defoamers, thickeners and solvents. Aqueous printing inks predominantly contain water as a diluent and/or vehicle. The thickeners which are preferred include algonates, starch, cellulose and its derivatives, for example cellulose esters or cellulose ethers and the like. Coloring agents including organic as well as inorganic pigments may

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be derived from dyes which are insoluble in water and solvents. Suitable binders include acrylates and/or polyvinylchloride.

When metallic inks are printed, the cells of the anilox roller must be appropriately sized to prevent the metal particles from getting stuck within the cells. For example, for metallic gold ink, the anilox roller should have a screen line count in the range of 175-300 lines per inch (68-118 lines per cm). Preferably, in order to keep the anilox roller cells clear, the doctor blade assembly 68 is equipped with a bristle brush BR (FIG. 14) as set forth in U.S. Pat. No. 5,425,809 to Steven M. Person, assigned to Howard W. DeMoore, and licensed to Printing Research, Inc. of Dallas, Tex., U.S.A., which is incorporated herein by reference.

The inking/coating apparatus 10 can also apply UV-curable inks and coatings. If UV-curable inks and coatings are utilized, ultra-violet dryers/extractors are installed adjacent to the high velocity hot air dryer/extractor units 124, 126 and 128, respectively.

It will be appreciated that the LITHOFLEX™ printing process described herein makes it possible to selectively operate a printing unit of a press in the lithographic printing mode while simultaneously operating another printing unit of the same press in either the flexographic printing mode or in the waterless printing mode, while also providing the capability to print or coat, separately or simultaneously, from either the plate position or the blanket position. The dual cradle support arrangement of the present invention makes it possible to quickly change over from inking/coating on the blanket cylinder position to inking/coating on the plate cylinder position with minimum press down-time, since it is only necessary to remove and reposition or replace the applicator roller 66 while the inking/coating apparatus 10 is in the retracted position. It is only necessary to remove four cap screws, lift the applicator roller 66 from the cradle, and reposition it in the other cradle. All of this can be accomplished in a few minutes, without removing the inking/coating apparatus 10 from the press.

It is possible to spot coat or overall coat from the plate position or from the blanket position with flexographic inks or coatings on one printing unit and then spot coat or overall coat with UV-curable inks or coatings from the plate position or from the blanket position on another printing unit during the same press run. Moreover, the press operator can spot or overall coat from the plate for one job, and then spot and/or overall coat from the blanket on the next job.

The positioning of the applicator roller relative to the plate or blanket is repeatable to a predetermined preset operative position. Consequently, only minor printing unit modifications or alterations may be required for the LITHOFLEX™ process. Although automatic extension and retraction have been described in connection with the exemplary embodiment, extension to the operative (on-impression) position and retraction to a non-operative (off-impression) position can be carried out manually, if desired. In the manual embodiment, it is necessary to latch the inking/coating apparatus 10 to the press side frames 14, 15 in the operative (on-impression) position, and to mechanically prop the inking/coating apparatus in the off-impression (retracted) position.

Referring again to FIG. 8, an applicator roller 66 is mounted on the lower cradle assembly 100 by side support members 78, 80, and a second applicator roller 66 is mounted on the upper cradle assembly 102 by side support members 82, 84. According to this arrangement, the inking/coating apparatus 10 can apply printing ink and/or coating

material to a plate on the plate cylinder, while simultaneously applying printing ink and/or coating material to a plate or a blanket on the blanket cylinder of the same printing unit. When the same color ink is used by the upper and lower applicator rollers from the plate position and from the blanket position simultaneously on the same printing unit, a "double bump" or double inking films or coating layers are applied to the substrate S during a single pass of the substrate through the printing unit. The tack of the two inks or coating materials must be compatible for good transfer during the double bump. Moreover, the inking/coating apparatus 10 can be used for supplying ink or coating material to the blanket cylinder of a rotary offset web press, or to the blanket of a dedicated coating unit.

According to conventional bronzing techniques, a metallic (bronze) powder is applied off-line to previously printed substrate which produces a grainy, textured finish or appearance. The on-line application of bronze material by conventional flexographic or lithographic printing will only produce a smooth, continuous appearance. However, a grainy, textured finish is preferred for highest quality printing which, prior to the present invention, could only be produced by off-line methods.

Referring now to FIG. 14 and FIG. 15, metallic ink or coating material is applied on-line to the substrate S by simultaneous operation of the upper and lower applicator rollers 67R, 66 to produce an uneven surface finish having a bronze-like textured or grainy appearance. According to the simulated bronzing method of the present invention, the flexographic bronze ink is applied simultaneously to the plate and to the blanket by the dual cradle inking/coating apparatus 10 as shown in FIG. 14. A resilient applicator roller 67R is mounted in the upper cradle 102, and an anilox applicator roller 66 is mounted on the lower cradle 100. The rollers are supplied from separate doctor blade reservoirs 70. The doctor blade reservoir 70 in the upper cradle position supplies bronze ink or coating material having relatively coarse, metallic particles 140 dispersed in aqueous or flexographic ink. The coarse particle ink or coating material is applied to the plate P by the resilient applicator roller 67R in the upper cradle position 102. At the same time, flexographic and/or bronze ink or coating material having relatively fine, metallic particles 142 is transferred to the blanket B by the anilox roller 66 which is mounted on the lower cradle 100.

The metering surfaces of the upper and lower applicator rollers have different cell sizes and volumetric capacities which accommodate the coarse and fine metallic particles. For example, the anilox roller 111 mounted in the upper cradle position 102 which transfers the coarse metallic particles 140 preferably has a screen line count in the range of 100-300 lines per inch (39-118 lines per cm), and the metering surface of the anilox roller 66 mounted on the lower cradle 100 which transfers the relatively fine metallic particles 142 preferably has a screen line count in the range of 200-600 lines per inch (79-236 lines per cm).

After transfer from the plate to the blanket, the fine metallic particles 142 form a layer over the coarse metallic particles 140. As both bronze layers are offset onto the substrate S, the layer of fine metallic particles 142 is printed onto the substrate S with the top layer of coarse metallic particles 140 providing a textured, grainy appearance. The fine metallic particles 142 cover the substrate which would otherwise be visible in the gaps between the coarse metallic particles 140. The combination of the coarse particle layer over the fine particle layer thus provides a textured, bronzed-like finish and appearance.

Particulate materials other than metal can be used for producing a textured finish. For example, coarse and fine particles of metallized plastic (glitter), mica particles (pearlescent) and the like, can be substituted for the metallic particles for producing unlimited surface variations, appearances and effects. All of the particulate material, including the metallic particles, are preferably in solid, flat platelet form, and have a size dimension suitable for application by an anilox applicator roller, other particulate or granular material, for example stone grit having irregular form and size, can be used to good advantage.

Solid metal particles in platelet form, which are good reflectors of light, are preferred for producing the bronzed-like appearance and effect. However, various textured finishes, which could have light-reflective properties, can be produced by using granular materials such as stone grit. Most commonly used metals include copper, zinc and aluminum, other ductile metals can be used, if desired. Moreover, the coarse and fine particles need not be made of the same particulate material. Various effects and textured appearances can be produced by utilizing diverse particulate materials for the coarse particles and the fine particles, respectively. Further, either fine or coarse particle ink or coating material can be printed from the upper cradle position, and either fine or coarse particle ink or coating material can be printed from the lower cradle position, depending on the special or surface finish that is desired.

It will be appreciated that the last printing unit 28 can be configured for additional inking/coating capabilities which include lithographic, waterless, aqueous and flexographic processes. Various substrate surface effects (for example double bump or triple bump inking/coating or bronzing) can be performed on the last printing unit. For triple bump inking/coating, the last printing unit 28 is equipped with an auxiliary in-line inking or coating apparatus 97 as shown in FIG. 3 and FIG. 4. The in-line inking or coating apparatus 97 allows the application of yet another film of ink or a protective or decorative layer of coating material over any freshly printed or coated surface effects or special treatments, thereby producing a triple bump. The triple bump is achieved by applying a third film of ink or layer of coating material over the freshly printed or coated double bump simultaneously while the substrate is on the impression cylinder of the last printing unit.

When the in-line inking/coating apparatus 97 is installed, it is necessary to remove the SUPER BLUE® flexible covering from the delivery cylinder 42, and it is also necessary to modify or convert the delivery cylinder 42 for inking/coating service by mounting a plate or blanket B on the delivery cylinder 42, as shown in FIG. 3 and FIG. 4. Packing material is placed under the plate or blanket B, thereby packing the plate or blanket B at the correct packed-to-print radial clearance so that ink or coating material will be printed or coated onto the freshly printed substrate S as it transfers through the nip between the plate or blanket B on the converted delivery cylinder 42 and the last impression cylinder 36. According to this arrangement, a freshly printed or coated substrate is overprinted or overcoated with a third film or layer of ink or coating material simultaneously while a second film or layer of ink or coating material is being over-printed or over-coated on the last impression cylinder 36.

The auxiliary inking/coating apparatus 97 and the converted or modified delivery cylinder 42 are mounted on the delivery drive shaft 43. The inking/coating apparatus 97 includes an applicator roller, preferably an anilox applicator roller 97A, for supplying ink or coating material to a plate

or blanket B on the modified or converted delivery cylinder 42. The in-line inking/coating apparatus 97 and the modified or converted delivery cylinder 42 are preferably constructed as described in U.S. Pat. No. 5,176,077 to Howard W. DeMoore (co-inventor and assignee), which is hereby incorporated by reference. The in-line inking/coating apparatus 97 is manufactured and sold by Printing Research, Inc. of Dallas, Tex., U.S.A., under its trademark SUPER BLUE EZ COATER.™

After the delivery cylinder 42 has been modified or converted for inking/coating service, and because of the reduced nip clearance imposed by the plate or blanket B, the modified delivery cylinder 42 can no longer perform its original function of guiding and transferring the freshly printed or coated substrate. Instead, the modified or converted delivery cylinder 42 functions as a part of the inking/coating apparatus 97 by printing or coating a third down film of ink or layer of coating material onto the freshly printed or coated substrate as it is simultaneously printed or coated on the last impression cylinder 36. Moreover, the mutual tack between the second down ink film or coating layer and the third down ink film or coating layer causes the overprinted or overcoated substrate to cling to the plate or blanket, thus opposing or resisting separation of the substrate from the plate or blanket.

To remedy this problem, a vacuum-assisted transfer apparatus 99 is mounted adjacent the modified or converted delivery cylinder 42 as shown in FIG. 3 and FIG. 4. Another purpose of the vacuum-assisted transfer apparatus 99 is to separate the freshly overprinted or overcoated triple bump substrate from the plate or blanket B as the substrate transfers through the nip. The vacuum-assisted transfer apparatus 99 produces a pressure differential across the freshly overprinted or overcoated substrate as it transfers through the nip, thus producing a separation force onto the substrate and providing a clean separation from the plate or blanket B.

The vacuum-assisted transfer apparatus 99 is preferably constructed as described in U.S. Pat. Nos. 5,113,255; 5,127,329; 5,205,217; 5,228,391; 5,243,909; and 5,419,254, all to Howard W. DeMoore, co-inventor, which are incorporated herein by reference. The vacuum-assisted transfer apparatus 99 is manufactured and sold by Printing Research, Inc. of Dallas, Tex., U.S.A., under its trademark BACVACTM.

Although the present invention and its advantages have been described in detail, it should be understood that various changes, substitutions and alterations can be made herein without departing from the spirit and scope of the present invention as defined by the appended claims.

What is claimed is:

1. In a rotary offset printing press having first and second side frame members and a plurality of printing units each having a plate cylinder, a blanket cylinder, and an impression cylinder supported for rotation in operable combination, the printing units having a delivery side and a dampener side opposite the delivery side, an interunit operator space between printing units and a dampener or a space for a dampener on the dampener side of each unit, the improvement comprising:

a printing apparatus for inking or coating, the printing apparatus having a frame movably coupled to at least one printing unit in the space for a dampener, the printing apparatus being movable between an on-impression operative position and an off-impression retracted position;

the movable frame supporting a removable first applicator roller and a removable second applicator roller, the first

applicator roller, being supported for adjustment into and out of ink or coating association with the plate cylinder and the second applicator roll being supported for adjustment into and out of ink or coating association with the blanket cylinder, when the printing apparatus is moved respectively to the on-impression operative position and the off-impression retracted position; whereby a continuous or spot film of ink or coating can be applied simultaneously by the printing apparatus to a plate on the plate cylinder and the blanket cylinder and ink or coating can be selectively applied to the plate cylinder or blanket cylinder or a plate mounted thereon if one of the first or second applicator rollers is removed from the frame.

2. The invention as set forth in claim 1 wherein the printing apparatus includes:

- a doctor blade assembly having a reservoir for receiving ink or coating material coupled to the first or second applicator roll.

3. The invention as set forth in claim 2, the applicator roller comprising:

- a roller having a resilient transfer surface.

4. The invention as set forth in claim 1, including:

- first and second pivot pins mounted on the first and second side frame members, respectively, said pivot pins extending in alignment with the rotational axis of the plate and blanket cylinders; and
- the printing apparatus being pivotally coupled for rotational movement on the pivot pins.

5. The invention as set forth in claim 1, further comprising:

- a power actuator pivotally coupled to the printing unit, the power actuator having a power transfer arm which is extendable and retractable; and,
- apparatus coupled to the power transfer arm and to the printing apparatus for converting extension or retraction movement of the power transfer arm into pivotal movement of the printing apparatus relative to the plate and blanket cylinder.

6. The invention as set forth in claim 5, in which the movement converting apparatus comprises:

- a bell crank plate having a first end portion pivotally coupled to the printing apparatus for engaging the printing unit and having a second end portion for engaging a stop member; and,
- a stop member coupled to the inking or coating apparatus for engaging the second end portion of the bell crank plate.

7. The invention as set forth in claim 1, the printing apparatus comprising:

- the movable frame having first and second side support members;
- the ink or coating applicator rollers being mounted between the first side support member and second side support member and having a reservoir or fountain pan for receiving ink or coating material;
- cradle means mounted on the first and second side support members, respectively for removably supporting the first and second applicator rollers in the movable frame;
- power transfer means coupled to the applicator rollers for rotation thereof.

8. The invention as set forth in claim 7,

- the cradle means including a first cradle assembly disposed on the first and second side support members, respectively, and a second cradle assembly disposed on the first and second side support members, respectively;

the first applicator roller is mounted for rotation on the first cradle assembly; and

the second applicator roller is mounted for rotation on the second cradle assembly.

9. The invention as set forth in claim 1 wherein a container means for containing liquid ink or coating material and means for applying ink or coating material from the container means to a peripheral surface portion of the first and second applicator rolls is provided and supported by the printing apparatus.

10. The invention as set forth in claim 9 wherein the container means comprises a doctor blade assembly having a reservoir or fountain pan for supplying ink or coating material to each of said applicator rollers, and having a doctor blade disposed for wiping engagement with each of said applicator rollers when it is received in rolling contact with ink or coating material in the reservoir or pan.

11. The invention as set forth in claim 9, wherein the container means comprises a fountain pan and the inking applying means comprises a pan for transferring ink or coating material from the fountain pan to said first and second applicator rollers.

12. A rotary offset printing press having a printing unit of the type having a delivery side and a dampener side, said dampener side having a dampener space for receiving a dampener, comprising, in combination:

- a plate cylinder mounted on the printing unit between the delivery side and the dampener side, and a printing plate mounted on the plate cylinder;

- a blanket cylinder having an ink or coating receptive blanket disposed in ink or coating transfer engagement with the plate for transferring ink or coating material from the image surface areas of the printing plate to the ink or coating receptive blanket;

- an impression cylinder disposed adjacent the blanket cylinder thereby forming a nip between the blanket and the impression cylinder whereby the printing ink or coating material is transferred from the blanket to a substrate as the substrate is transferred through the nip;
- support means mounted on the dampener side of the printing unit;

- an inking or coating apparatus having a removable first applicator roller and a removable second applicator roller, being positioned in the dampener space in place of a dampener, the inking or coating apparatus being coupled to the support means for movement between an on-impression operative position and an off-impression retracted position wherein the first applicator roller is adjustably supported for movement into and out of ink or coating association with the plate on the plate cylinder while the second applicator roller is adjustably supported for simultaneous movement into and out of ink or coating association with the blanket on the blanket cylinder; and

- whereby a continuous or spot film of ink or coating can be applied by the inking and coating apparatus to a plate on the plate cylinder and a blanket on the blanket cylinder and ink or coating can be selectively applied to the plate on the plate cylinder or the blanket cylinder or blanket or a plate thereon.

13. The invention as defined in claim 12 wherein the plate cylinder, blanket cylinder, impression cylinder and inking or coating apparatus forms a first printing unit, the printing press having a second printing unit for printing or coating the substrate subsequently to the first printing unit, the printing press further including:

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a dryer mounted on the printing press for discharging heated air onto a freshly printed or coated substrate from the first printing unit before the freshly printed or coated substrate is subsequently printed, coated or otherwise processed in the second printing unit.

14. The invention as defined in claim 13 wherein:

the dryer is mounted adjacent to the impression cylinder for discharging heated air onto a freshly printed or coated substrate while the substrate is in contact with the impression cylinder.

15. The invention as defined in claim 13 comprising:

an extractor coupled to the dryer for extracting hot air, moisture, odors and volatiles from an exposure zone between the dryer and the freshly printed or coated substrate.

16. The invention as defined in claim 12 wherein the printing press has an interunit position, comprising:

a transfer cylinder disposed in the interunit position on the press and coupled in sheet transfer relation with the impression cylinder; and

an interunit dryer disposed adjacent the transfer cylinder for discharging heated air onto a freshly printed or coated substrate after it has been transferred from the impression cylinder and while it is in contact with the transfer cylinder.

17. A printing press as defined in claim 12 wherein the plate cylinder, blanket cylinder, impression cylinder, support means and inking or coating apparatus form a first printing unit, the printing press having a second printing unit including a plate cylinder, a blanket cylinder and an impression cylinder in operable combination, further including:

a transfer drum coupled in substrate transfer relation with the impression cylinder of the first printing unit and in substrate transfer relation with the impression cylinder of the second printing unit;

a first dryer mounted adjacent the impression cylinder of the first printing unit for discharging heated air onto a freshly printed or coated substrate while the substrate is in contact with the impression cylinder of the first printing unit;

a second dryer mounted adjacent the transfer drum for discharging heated air onto a freshly printed or coated substrate after it has been transferred from the impression cylinder of the first printing unit and while it is in contact with the transfer cylinder; and

a third dryer disposed adjacent the impression cylinder of the second printing unit for discharging heated air onto a freshly printed or coated substrate after it has been transferred from the transfer drum and while it is in contact with the impression cylinder of the second printing unit.

18. The invention as defined in claim 12 wherein the inking or coating apparatus includes:

first cradle means for supporting the first applicator roller for engagement with the plate when the inking or coating apparatus is in the operative position; and,

second cradle means for supporting the second applicator roller for engagement with the blanket when the inking or coating apparatus is in the operative position.

19. The invention as defined in claim 12, said support means comprising:

first and second pivot means mounted on the first and second side frame members, respectively.

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20. The invention as defined in claim 12, further comprising:

a power actuator pivotally coupled to the inking or coating apparatus, the power actuator having a power transfer arm which is selectively extendable or retractable; and,

apparatus coupled to the power transfer arm and to the inking or coating apparatus for converting extension or retraction movement of the power transfer arm into pivotal movement of the inking or coating apparatus relative to the printing unit.

21. The invention as defined in claim 12 further comprising:

a bell crank plate having a first end portion coupled to the inking or coating apparatus and having a second end portion for engaging a stop member; and,

a stop member secured to the inking or coating apparatus for engaging the second end portion of the bell crank plate.

22. The invention as defined in claim 1 or 12 wherein the inking or coating apparatus comprises:

the first applicator roller having a resilient transfer surface.

23. A printing press as defined in any one of claims 1 or 12 including:

a supply container for containing a volume of liquid ink or coating material;

circulation means coupled between the supply container and the inking or coating apparatus for inducing the flow of liquid ink or coating material from said supply container to the inking or coating apparatus and for returning liquid ink or coating material from the inking or coating apparatus to the supply container; and,

heat exchanger means coupled to the circulation means for maintaining the temperature of the liquid ink or coating material within a predetermined temperature range.

24. A printing press as defined in any one of the claims 1 or 12 wherein the inking or coating apparatus comprises:

a fountain pan for containing a volume of liquid ink or coating material;

an applicator roller having a metering surface; and,

a pan roller mounted for rotation in the fountain pan and coupled to the applicator roller for transferring ink or coating material from the fountain pan to the applicator roller.

25. A printing press as defined in any one of claims 1 or 12 characterized in that:

a resilient packing is mounted on the blanket cylinder, and a printing plate is mounted on the resilient packing.

26. A printing press as defined in any one of claims 1 or 12 further including means for applying ink or coating material to the first and second applicator rollers, and the inking or coating apparatus is pivotally mounted on the printing unit in a position in which the nip contact point between the applicator rollers and the blanket and plate cylinders is offset with respect to a radius line projecting through the center of the plate cylinder and blanket cylinder to the axis of pivotal motion of the inking or coating apparatus.

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PATENT APPLICATION



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	Date received (Incl. C. of M.) or Date Mailed	Date received (Incl. C. of M.) or Date Mailed
1. Application <u>✓</u> papers.		
2. <u>Re: R. P. in on T. R.</u>	10-1-98	
3. <u>Re: R. P. in on T. R.</u>	11-9-98	
4. <u>Re: Amended</u>	8-19-98	
5. <u>Examiner's Amended</u>	3-29-99	
6. <u>R. P. 31-2 (no paper)</u>	3/29/99	
7. <u>I. O. S.</u>	3-22-99	
8. <u>PTOL-90</u>	4-27-99	
9. <u>Reg. for Consideration of IAS</u>	4-29-99	
10. <u>Formal Drawings (15 sheets) set</u>	5-24-99	
11. <u>I. O. S. SUPPTE</u>	7-1-99	
12. <u>Letter re Comment on Allow</u>	7-1-99	
13. <u>Suppl Notice of Allowability</u>	8/25/99	
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POSITION	INITIALS	ID NO.	DATE
FEE DETERMINATION	SMC		8/25/98
O.I.P.E. CLASSIFIER		59	8/26
FORMALITY REVIEW	MB	70303	b-1

INDEX OF CLAIMS

✓ Rejected N Non-elected
 = Allowed I Interference
 - (Through numeral) Canceled A Appeal
 + Restricted O Objected

Claim	Final	Original	Date
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Claim	Final	Original	Date
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Claim	Final	Original	Date
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If more than 150 claims or 10 actions
staple additional sheet here

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SEARCHED				SEARCH NOTES (INCLUDING SEARCH STRATEGY)			
Class	Sub.	Date	Exmr.			Date	Exmr.
101	136: 137 142 143 144 145 177 183 207-210 216 217, 218 349.1 350.1 350.2 351.3 352.01 352.02 352.04 352.05 363	3/23/99	JTP				

SEARCHED				SEARCH NOTES (INCLUDING SEARCH STRATEGY)			
Class	Sub.	Date	Exmr.			Date	Exmr.
101	136:	3/23/99	JTP				
	137						
	142						
	143						
	144						
	145						
	177						
	183						
	207-210						
	216						
	217, 218						
	349.1						
	350.1						
	350.2						
	351.3						
	352.01						
	352.02						
	352.04						
	352.05						
	363						

SEARCHED				SEARCH NOTES (INCLUDING SEARCH STRATEGY)			
Class	Sub.	Date	Exmr.			Date	Exmr.
101	136:	3/23/99	JTP				
	137						
	142						
	143						
	144						
	145						
	177						
	183						
	207-210						
	216						
	217, 218						
	349.1						
	350.1						
	350.2						
	351.3						
	352.01						
	352.02						
	352.04						
	352.05						
	363						

INTERFERENCE SEARCHED			
Class	Sub.	Date	Exmr.
101	under suggested abs.	3/25/99	JTF

INTERFERENCE SEARCHED			
Class	Sub.	Date	Exmr.
101	under suggested abs.	3/25/99	JTF

INTERFERENCE SEARCHED			
Class	Sub.	Date	Exmr.
101	under suggested abs.	3/25/99	JTF

INTERFERENCE SEARCHED			
Class	Sub.	Date	Exmr.
101	under suggested abs.	3/25/99	JTF